1947.1. Bowen, Las Animas Co., Colorado. Elev. about 6100 feet. July 25, 1947. (R.)
Typical plains short grass, numerous bare spots, scattered yuccas, thistle, sunflower etc. No sage. Sunshine.
Cordillacris abundant, all adult. Chiefly on bare ground. *Stirapleura* few, similarly on bare ground. *Amphitornus*, one, all seen. *Eritettix*, ditto. *Derotmema haydeni*, one adult – 1 juv., all seen. *Mestobregma plattei*, one, all seen. *Aeoloplides plagosus* type, one, all seen. *Melanoplus* long-winged *lakinus* ? Few, one pair in coitu taken. *Aulocara elliotti*, one taken, all seen. *Ageneotettix*, one taken, all seen.
Orth. 29.
Other ins. 12.

1947.2 Near Pryor, Huerfano Co., Colorado. Elev. about 6500 feet. July 25, 1947. (R.)
Roadside drain with tall sunflowers, composites, tall grass and numerous other weeds. Sunshine.
Melanoplus femur-rubrum ph. *plumbeus*. Few, just becoming adult, one teneral. *Melanopl.* another species, one taken, all seen. *Aeoloplides* 1 taken, all seen. *Dissosteira carolina*. Usual roadside, one taken. *Oecanthus* juvs. only, none taken.
Orth. 6 + 29 = 35.
Other ins. 20 + 12 = 32.

1947.3 Betw. Walsen and Adell, Huerfano Co., Colorado. Elev. 6500 feet. July 25, 1947. (R.). Brush, above La Veta Creek, with cover of low composites (yellow flowered), scattered opuntia and a few cholla, with many bare spots. Area dotted with small groves of pinyon pine. Sunshine. Little in evidence.

Stirapleura, in fair numbers. *Trimerotropis monticola*, frequent. *Trim. citrina* one only seen & taken.

Orth. 8 + 35 = 43

Other ins. 2 + 32 = 34.

1947.4 La Veta Pass, Costilla-Huerfano Cos., Colorado. Elev. 9382 feet. (U.S. Survey). July 25, 1947. (R.) Sunshine.

Roadside work in aspen & pine woods, apparently second growth forest. Everything posted on both sides. Alpine flowers very beautiful, particularly the blue columbine.

Aeropedellus Not common. *Camnula* 1 ad. & 1 juv. seen & taken. *Melanoplus altitudinum* very few, 2 ♂♂ taken. *Mel.* sp. with pointed cerci 1 ♂ taken, no others seen.

Orth. 10 + 43 = 53.

Other insects 13 + 34 = 47.

1947.5 Nine miles N.W. of Alamosa, Alamosa Co., Colorado. Elev. (aneroid) 7550 feet. July 26, 1947. (R.)

Flat of San Luis Valley with pans of alkali soil with pools of water. Vegetation occasional pickle weed (salt bush?) and yellow flowered composites, few low cacti & sage. Very few Orth. evident.

Tetrix. Few on damp ~~sof~~ alkaline silt.

Orphulella. Few juvs. in vegetation near same.

Cordillacris. Very few on bare dry soil.

Trimerotropis pallidipennis. Few, on ditto

Melanoplus species. One juv. tmpt.

Orth. 8 + 53 = 61.

Other ins. 20 + 47 = 67.

1947.6 Five miles N.W. of Monte Vista, Rio Grande Co., Colorado. Elev. (aneroid) 7600 feet. July 26, 1947. (R.)

Heavily grazed short grass and bunch grass flats with scattered taller composites and some low sage. Much of ground bare.

Amphitornus, few, roadside, some in bunch grass. Cordillacris crenulata, local on bare ground, adults & juvs. Xanthippus corallipes, few, all seen taken, active and far flying.

Stirapleura, few.
Derotmema haydeni, few & local, adults & juvs., on bare ground.
Mestobregma plattei, one, all seen, taken.
Trimerotropis monticola, few.
Melanoplus species, all juvs., few.
Hesperotettix, 1 juv., all seen, much work on composites failed to produce more.

Orth. 20 + 61 = 81.
Other ins. 26 + 67 = 93.

1947.7 Eleven miles [illegible] W. of Del Norte, Rio Grande Co., Colorado. Elev. (aver.) 7900 feet. July 26, 1947. (R.).

Short grass and chiefly low yellow-flowered composites. Some scattered taller composites. Ground cover very short grass, much of ground in rills between short grass mats was bare. Pinyon coming in on bluffs. Very little Orth.

Cordillacris, one seen & lost.
Trimerotropis gracilis, not common.
" monticola, one taken, all seen. Derotmema haydeni, sev. juvs. only. No sign of Melanoplus or Hesperotettix.

Orth. 6 + 81 = 87.
Other ins. 18 + 93 = 111.

1947.8 Beaver Creek Camp, above ~~Baxter~~ Baxterville, Rio Grande Nat. Forest, Rio Grande Co., Colorado. Elev. (aner.) 8200 feet. July 26, 1947. (R.).
Ground between boulders under open spruce forest & nearby mountain meadow with tall grass and numerous mountain flowers.
Camnula pellucida, abundant in the meadow.
Cratypedes neglectus, fairly numerous in same. Aeropedellus, few, in meadow.
Circotettix, several seen, one taken. Air dancing over rocky section.
Trimerotropis monticola, few, in meadow.
Melanoplus sp., juvs. only, few.
Orth. 48 + 87 = 135.
Other ins. 17 + 111 = 128.

1947.9 Wolf Creek Pass, San Juan Mts., Mineral Co., Colorado. Elev. (b. mark) 10800 feet. July 27, 1947. (R.)
Alpine meadow, a few hundred feet below timber-line, but actually in the pass. Very little Orth. except juvs.
Melanoplus sp. (alpine) 1 ad. ♂, all seen after careful search.
" numerous juvs.
Orth. 12 + 87 = 99.
Other ins. 36 + 111 = 147.

1947.10 Valley of Upper San Juan River, so. side of Wolf Creek Pass, San Juan Mts., Mineral Co., Colorado. Elev. approx. 8500 feet. July 27, 1947. (R.).
Meadowy areas with tall grass in an open section of spruce and aspen forest. Little Orth.
Camnula abundant. Mel. altitudinum (?) 2 ♀♀, all adults seen, both taken, numerous juvs.

Orth. 13 + 99 = 112.
Other ins. 17 + 147 = 164.

1947.11 Near Chimney Rock, Archuleta Co., Colorado. Elev. betw. 6500-7000 feet. July 27, 1947. (R.).
In open pine forest with short grass, low bushes, occas. shrubbery and a bank of bare silt, the whole much cut up by small rill washes.
Dissosteira carolina, numerous, roadside, one taken. Trimerotropis, red-legged, numerous, general. Mestobregma plattei, few on bare silt slope.
Melanoplus sp., 2 adult ♀♀, all adults seen, num. juvs. No males to be found after considerable search.
Eritettix, 1 ad., all seen.
Orth. 13 + 112 = 125.
Other ins. 4 + 164 = 168

1947.12 Near Rockwood, La Plata Co., Colorado.
Elev. (aner.) 7700 feet. July 28, 1947. (R.)
Moderately ~~tall~~ heavy thin oak and pine woods, with open areas and thickets of low thin oak. Oaks normally rather low, pines of varying heights, some quite low, there was at least some tall pine. Ground cover short grass, largely now cured, or low annuals. Arphia arcta type, several, all seen taken, among thin oak on ground. Dissosteira carolina, few on road surface or adjacent bare ground. *1 juv. also taken. Circotettix rabula, several, both taken, on bare ground. Trimerotropis red-legged, one taken, all seen. Camnula abundant along roadside drainage. Some juv. Melanoplus mexicanus, in fair nos., general, occas. flying into low thin oak.

Orth. 18 + 125 = 143.
Other ins. 9 + 168 = 177.

1947.13 Nine miles N. of Rockwood, La Plata Co., Colorado. Elev. 8400 feet. (aner.) VII.28.1947 (R.)
In spruce and aspen zone (typical Canadian), with some meadowy areas. Some of the spruce and aspen stands were relatively open, with small grassy vales interspersed. Very few adult Orth. + few in any stage. Tetrix - 1 swept in a dry swale near road. Chorthippus, juvs. were general, adults

very scarce, all seen taken, ~~also in open~~ also in open swaly area near road with tall grass — at the moment dry — and also in the ~~drier~~ drier grass areas on higher ground among spruces + aspens.

Camnula — 1 adult + 1 juv. taken, all seen.

Melanoplus

Orth. ♀20 1 juv. + 143 = 163

Other ins. 16 + 177 = 193.

1947.14 Four miles N. of Durango, La Plata Co., Colorado. Elev. 6500 feet (aneroid)

July 28, 1947. (R.)

Blue or short grass covered ground at the foot of a slope, the slope with much bare ground and scattered stones of a lower talus slope — valley bounding cliffs just up the slope. High com. dotted, chiefly a shrub superficially resembling manzanita but much different. An occasional pinyon present. Much of the low ground cover was a flattened rosette-like plant not over 6 inches high, grayish green. Another element was a tall spidery plant with yellow flowers. Many of the rock fragments were of red sandstone — cliffs largely these (I took photo of one of these).

Cordillacris, numerous and general, commonest roadside (latter equally dry).

Arphia pseudonietana, usual adults, one taken, also juvs.

1947.14 (cont.)

Trimerotropis red-legged, general on rocky slope but not common. Dissosteira car., general, some taken. Circotettix rab., usual on slope, one taken. Mestobregma kiowa, few on slope. Derotmema hayd., one seen + taken on rocky slope. Hesperotettix short-winged, general on slope but not common, not always but frequently in or near the two low plants mentioned above. Melanoplus mex., general. Melanoplus other species, much fewer and only on slope.

Orth. 54 + 163 = 217.
Other ins. 22 + 193 = 215.

1947.15 Hesperus Hill, 8 m. W. of Durango, La Plata Co., Colorado. Elev. 7950 feet (aner.) July 29, 1947
In open thin oak and pine and pinyon on high mesa, lower down chiefly thin oak scrub. Very little Orthoptera.
Cratypedes one seen, taken, on bare roadside. Arphia, ditto, ditto, ditto. Melanoplus sp., 1 juv. except.

Orth. 3 + 217 = 220.
Other ins. 2 + 215 = 217.

1947.16 Road crossing of Mancos Hill, 4 m. E. of Mancos, Montezuma Co., Colorado. Elev. (aner.) 7950 feet. July 29, 1947. (R.)

Edge of mesa with scattered bull pine. Ground cover low thin oak scrub, yellow flowered composite (rabbit weed) and scattered surface mats of short grass. Bare ground largely covered ~~and~~ with medium to small rock fragments. All Orth. seen taken.

Aeropedellus, 1♀ nymph from sparse low ground cover. Trimerotropis caerulipes, one, on rocky surface. Trim. suffusus, several, ditto. Circotettix rab., one on bare rocky ground.

Orth. 5 + 220 = 225.
Other ins. 27 + 217 = 244.

1947.17 Six miles E. of Cortez, Montezuma Co., Colorado. Elev. 6500 feet (aner.) July 29, 1947. (R.).

Cover sage, a sort of pickle weed and a number of different types of yellow-flowered composites (rabbit weed). General ground cover low, very sparse short grass - much of ground bare and badly washed. Orth. few in species & in individuals.

[illegible], 1 nymph from very low ground cover. Ageneotettix, one seen but lost. Trim. pallidipennis, ditto. Plagiostira

1947.17 (cont.)

1 ♀ swept from tall (5 feet) yellow-flowered composite. Aeranthus sp., 1 ad. & sev. juv. swept from both sage & composites.

Orth. 8 + 225 = 233

Other orders 13 + 244 = 257

Hesperotettix v.w. – infreq. in composite

1947.18 Betw. Ackmen and Cahone, Montezuma Co., Colorado. Elev. (aner.) 6900 feet. July 29, 1947. (R.)

Roadside nat. vegetation much in an area otherwise almost wholly in beans or wheat. The cover was scattered sage with much short & long grass (much sun cured) between. Bare reddish soil much exposed. Orth. not numerous. Mestobregma kiowa infrequent. Trimerotropis [illegible], local, few, on bare red soil. Cordillacris, few in short sun-cured grass. Melanoplus mex.-type, general but not common.

Orth. 14 + 233 = 247.

Other orders 11 + 257 = 268.

1947.19 One mile W. of Northdale, Dolores Co., Colorado (immed. E. of Colorado-Utah line). Elev. (aner.) 6750 feet. July 29, 1947. (R.).

Sage cover with interspersed plants of several genera of "rabbit weed" composites. Very few Orth.

Oecanthus, 1 juv. nymph.
~~[illegible], very few.~~

Hesperotettix. The w-species diff. from that around Blanding, very few, swept from compositae.

Short-winged brown *Melanoplus*, 1♂, 1♀ swept from sage, all seen.

Orth. 6 + 247 = 253.
Other orders 8 + 268 = 276.

1947.20 Four miles S. of Monticello, San Juan Co., Utah. Elev. (aner.) 7025 feet. July 30, 1947. (R.).

In sage and similar cover with much bare reddish sun-cracked dry ground. Orth. not numerous.

Cordillacris local, not numerous. *Trimerotropis gracilis* in fair nos. *Trim.* red-legged species, local on bare reddish ground. *Oecanthus* sp., juv. nymph.

Orth. 14 + 253 = 267.
Other orders 10 + 276 = 286.

1947.21 2.5 miles S.W. of Verdure, San Juan Co., Utah. Elev. (aner.) 7150 feet. July 30. 1947. (R.)

In long hill swells largely sage covered, with many stands of low oak and a very dense berry bearing low tree. Much of ground bare, reddish, dry and sun-cracked. *Very* few Orth.

1947.21 (cont.)

Trimerotropis *gracilis*, numerous. *Hesperotettix* short-winged, one swept from tall yellow-flowered composite. *Oecanthus*, one juv. swept. *Derotmema* *haydeni*, few, adults & juvs. on bare gr.

Orth. 8 + 267 = 275.

Other orders 9 + 286 = 295.

1947.22 8 miles N. of Monticello, San Juan Co., Utah. Elev. (ann.) 6600 feet. July 30, 1947. (R.)

Juniper & pinyon covered bench, with sage and rabbit weed lower cover, and much bare ground, with some rock exposures. Few Orth.

Trimerotropis *cyanipennis*, infrequent but general on bare ground or rock. *Hesperotettix* short-winged, beaten from rabbit weed.

Orth. 6 + 275 = 281.

Other ins. 2 + 295 = 295

1947.23 Road crossing of Hatch Wash, 23 miles N. of Monticello, San Juan Co., Utah. Elev. (ann.) 5500 feet. July 30, 1947. (R.)

Slopes leading to wash floor with much broken stone in the reddish silt. Cover very short bunch grass and *low* composites. A very few junipers and pinyons were dotted on the surface.

Agenotettix very local and exceedingly active, not common. Trimerotropis pallidip. one seen, but not taken. Trim. red-legged, very few. Cordillacris, numerous and general.

Orth. 14 + 281 = 295.
Other ins. 6 + 295 = 301.

1947.24 6 miles N. of Hatch Wash road crossing, San Juan Co., Utah. Elev. (aner.) 5700 feet. July 30, 1947. (R.) [At natural bridge which was photographed.]

In broad ravine between red sandstone cliffs. Cover open juniper and pinyon with sage and rabbit weed. Much of surface heavily grazed. Few Orth.

Amphitornus, one smpt, ~~few~~ all seen.
Trimerotropis red-legged, few. Mestobregma, several, adults - juv., all seen.
Melanoplus sp., 1 juv. smpt.
Hesperotettix short-winged, 1 smpt from rabbit weed.

Orth. 9 + 295 = 304
Other orders 8 + 301 = 309.

1947.25 Ten miles S. of Moab, San Juan Co., Utah. Elev. (aner.) 4350 feet. July 30, 1947. (R.)

Level country under bluffs, with *Atriplex*, rabbit weed of various types and many tumble weed, the reddish ground silt much washed.

Trimerotropis red-legged, very local and few. *Trim. pallidip.*, seen but not taken. *Mestobregma*, very few. *Plagiostira*, one pair taken from a single *Atriplex* bush, the other male swept from a similar bush.

Orth. 5 + 304 = 309.
Other ins. 1 + 309 = 310

1947.26 Flood plain of Colorado River, 3 m. N. of Moab, Grand Co., Utah. Elev. (aner.), 3975 feet. July 31, 1947. (R.).

At foot of canyon cliffs. Bare silt with scattered tumble weed and a few native plants. Almost no Orth.

Trimerotropis pallidip. 1, all seen. *Oecanthus*, 1 juv. swept.

Orth. 2 + 309 = 311.
Other ins. 1 + 310 = 311.

1947.27 Five miles N. of Colorado River road crossing N. of Moab, Grand Co., Utah. Elev. (aner.) 4800 feet. July 31, 1947. (R.)
Ground red silt weathered from adjacent red sandstone cliffs. Cover sparse rabbit weed, a few *Atriplex*, yucca, bunch grass & occ. other bushes. A few Juniper at cliff base. Very little Orth.
Trimerotropis pallidip., very few. *Trimerotropis* red-legged, one seen & taken. *Ageneotettix* very few, one taken. *Paropomala*, 1 juv. swept from bunch grass. *Stagmomantis* 1 juv. swept from *Atriplex*.

Orth. 5 + 311 = 316.

Other ins. 1 + 311 = 312.

1947.28. Twenty miles N. of road crossing of Colorado River, N. of Moab, Grand Co., Utah. Elev. (aner.) 4925 feet. July 31, 1947. (R.).
Surface largely bare silt with some stone fragments & pebbles. Cover very sparse — bunch grass, low rabbit weed and a ~~[illegible]~~ dwarf *Atriplex* or atriplex-like plant. Heavily grazed. Very few Orth.
Pseudosermyle, swept from bunch grass. *Opeia*, few, in roadside where more grass was present. *Trimerot. pallidip.*, few.

Orth. 4 + 316 = 320.

Other ins. 0 + 312 = 312.

1947.29 Floy, Grand Co., Utah. Elev. (appr.) 4600 feet. July 31, 1947. (R.).
Very bare yellow silt with taller "pickle" bushes, tall & med. composites (rabbit weed) and very low bunch grass. Very few Orth.
Paropomala, beaten from bunch grass.
Hesperotettix long-winged, very few in taller composites.
Orth. 2 + 320 = 322.
Other ins. 4 + 312 = 316.

1947.30 Fourteen miles N.W. of Green River, Emery Co., Utah. Elev. (appr.) 4500 feet, July 31, 1947. (R.).
Nothing but bare silt with tumble weed and a very few native low plants.
Only *Trimerotr.* *pallidipennis* seen.
Orth. 3 + 322 = 325.
Other ins. 0 + 316 = 316.

1947.31 Six miles N.W. of Woodside, Emery Co., Utah. Elev. (appr.) 5175 feet. July 31, 1947. (R.).
Low rolling silt knolls, very largely bare, some sparse bunch grass, very low *Atriplex* and predominating tumble weed. Almost no Orth. *Ageneotettix* few seen, one taken on bare ground.
Orth. 2 + 325 = 327.
Other ins. 3 + 316 = 319.

1947.32 Three miles N.W. of Royal, Price River Canyon, Carbon Co., Utah. Elev. (aner.) 6525 feet. Aug. 1, 1947. (R.).

Weedy roadside at narrow shelf in canyon. Very little Orth.

Melanoplus bivittatus, few, adults + juvs.

" mexicanus type, more numerous, adults + juvs.

Orth. 8 + 327 = 335.

Other ins. 5 + 319 = 324.

1947.33 Btw. Colton and Soldier Summit, Utah Co., Utah. Elev. btw. 7300-7400 feet. August 1, 1947. (R.)

Largely area of bare ground with spotty fair coverage of sage and rabbit weed. Little Orth.

~~Platybothrus, 1 seen + taken, on ground.~~

Circotettix rabula, 1 ditto.

Trimerotropis monticola type, 1 ditto.

Orth. 3 + 335 = 338.

Other ins. 3 + 324 = 327.

1947.34 Tucker, Utah Co., Utah. Elev. (approx.) check topographic map
6500 feet. Aug. 1, 1947. (R.).

Small flat in broad draw along Soldier Creek. Tumble weed and wild mustard chief cover, with a very little sage, mullen & thistle. Little Orth.

Trimer. pallidip., few on bare roadside material.
Melanoplus mex. type, general, numerous.

Orth. 8 + 338 = 346.
Other insec 4 + 327 = 331.

1947.35 Road summit between Indianola and Milburn, San Pete Co., Utah. Elev. approx. 6400 feet. Aug. 1, 1947. (R.)

Cover sage, oat-grass and low weeds with small area of bare soil.

Mestobregma, few. Trimerotropis, red-legged, frequent. Trim. cyanipes, a single one.
Arphia pseudonietana, one adult & 1 juv. seen and taken.
Camnula, 1 only, seen & taken.
Melanoplus foedus, local, not common.
" mex. type, general but not common.

Orth. 19 + 346 = 365.
Other ins. 24 + 331 = 355.

1947. 36 Three miles S. of Spring City, San Pete Co., Utah. Elev. (est.) 5700 feet. Aug. 1, 1947. (R.).

Cover almost entirely sage and rabbit weed, with some of what seemed to be white sage (?). Wind very strong, many Orth. escaped in consequence.

Ageneotettix very few, one taken. Trimerotr. latifasciata type, few, adult & juvs.

Mel. foedus, in fair nos., but wind made capture very difficult. Mel. sage brush species, one single indiv. swept from sage, expensive ~~beat~~ beating of sage added none. Mel. mex. type, abundant. Hesperotettix, infrequent, secured only by steady beating of rabbit weed, both green & brown phases. Oecanthus, 1 ad. & sev. juvs. beaten from rabbit weed.

Orth. 23 + 365 = 388.

Other ins. 6 + 355 = 361.

1947.37 Near Christianburg, San Pete Co., Utah. Elev. (aner.) 5150 feet. August 2, 1947. (R.)
Areas of dried mud flats with "pickle" bush and little else. Is this plant a Chenopodium?
Trimerotropis laticincta, locally numerous, few flying; always on bare mud. Dissosteira carolina, 1, roadside. Mestobregma impexum?, one taken, all seen after long search.
Melanoplus mex. type, abundant everywhere.
Orth. 12 + 388 = 400.
Other ins. 0 + 361 = 361.

1947.38 Near Sigurd, Sevier Co., Utah. Elev. (aner.) 5200 feet. Aug. 2, 1947. (R.).
Mud flats in lower end of canyon of Peterson Creek; ~~Sevier~~ little cover but tumble weed and "pickle" bush.
Trimerotropis laticincta, numerous but wary. Melanoplus mex. type, abundant. M. foedus; one seen & taken.
Orth. 5 + 400 = 405.
Other ins. 0 + 361 = 361.

1947.39 Valley of Peterson Creek, ab. 6 miles above Sigurd, Sevier Co., Utah. Elev. (aner.) 6900 feet. Aug. 2. 1947. (R.)
Small flat in canyon with low corn.
Trimerotropis cyanipes, few on bare surface.
Melanoplus foedus, one along road.
" mex. type, general, common.
Orth. 5 + 405 = 410.
Other ins. 2 + 361 = 363.

1947.40 Fish Lake, Sevier Co., Utah. Elev. at working point 8600 feet. (both aner. & chart). Aug. 2, 1947 (R.)
Rolling mountain downs with dense sage and many scattered isolated stands of aspen. No Orth. at all except Trim. suffusus, which was numerous on bare patches of ground between the sage.
Orth. 7 + 410 = 417.
Other ins. 3 + 363 = 366.

1947.41 Koosharem Reservoir, near Burrville, Sevier Co., Utah. Elev. (aner.) 7300 feet. Aug. 2, 1947. (R.).
In marshy spot alongside of reservoir (probably often flooded), ~~in~~ and also in short grass with much rabbit weed, ~~and~~ latter with no Orth. In swale Tetrix and a single Camnula all O. sum. + Fabr. Jer. cricket in swale. Some Trim. on dry ground.
Orth. 6 + 417 = ~~419~~ 423.
Other ins. 33 + 366 = 399.

1947.42 Five miles N. of Koosharem Reservoir, Sevier Co., Utah. Elev. (aner.-map). 7400 feet. Aug. 2, 1947. (R.).
Sage and rabbit weed flat. Absolutely no Orth.

Orth. 0 + 423 = 423.
Other ins. 19 + 399 = 418.

1947.43 Valley of Peterson Creek, Eight miles S. of Sigurd, Sevier Co., Utah. Elev. (aner.) ~~5500~~ 6500 feet. Aug. 2, 1947. (R.).
Narrow sage and rabbit weed flat with juniper on the bordering slopes.
Hesperotettix v.-w., 1 swept from rabbit weed & lost. *Melanoplus* mex. type, local. *Mel. foedus*, 1 only. *Trimerotropis* *cyaneipennis*, one, in sage. *Trim.* red-legged, in gravelly silt.

Orth. 9 + 423 = 432.
Other ins. 7 + 418 = 425.

1947.44 Three miles S. of Circleville, Garfield Co., Utah. Elev. (aner.) 5925 feet. Aug. 3, 1947. (R.)
Bench at foot of hills bordering the Sevier River. Sage and rabbit weed consisted almost the entire plant com.
Stirapleura, 1♀, all seen, in very short grass. *Derotmema* *cupidineum*, locally numerous.

sometimes flying into low bushes. Trimerotr. pallidip., common, general. Trimerotr.- red-legged, locally numerous on bare ground. Hesperotettix sh.-wg., one swept from rabbit weed, extensive search produced no more. Oecanthus, one juv. swept from rabbit weed.

Orth. 25 + 432 = 457.
Other ins. 15 + 425 = 440.

1947.45 Hog Valley, 11 miles S. of Circleville, Garfield Co., Utah. Elev. (aner.) 6150 ft. Aug. 3, 1947. (R.).

In rabbit weed - sage com (chiefly former)

Trimerotropis pallidip., common. Melanoplus sage brush sp., few in both sage and rabbit weed. Oecanthus juv. swept Nothing else seen.

Orth. 6 + 457 = 463.
Other ins. 37 + 440 = 477.

1947.46 Red Canyon at foot of west escarpment of Paunsaugunt Plateau, Garfield Co., Utah. Elev. (aner.) 7375 feet. Aug. 3, 1947. (R.)

Floor of canyon with areas of red washed soil and red rock fragments. Com very tall sage and rabbit weed. Very little Orth.

1947.46 (cont.)

Cordillacris, very few on bare ground. Trimer. gracilis, very few, one taken. Melanoplus sage brush sp., few, one taken. Hesperotettix sh. wg., one swept from rabbit weed and careful beating produced no more.

Orth. 4 + 463 = 467.

Other ins. 10 + 477 = 487.

1947.47 Paunsaugunt Plateau west of Bryce Canyon, Garfield Co., Utah. Elev. (ann.) 7925 feet. Aug. 3, 1947. (R.)

Nearly level plateau top with very low sage and rabbit weed, a few scattered cedars and bull pine.

Cordillacris local, few. Pedioscirtetes nevadensis, 1♂ + 1♀ all seen after extensive search about noon and again about 4.30 P.M. These were tramped out of very low semi-prostrate type of sage. Trim. pallid., occasionally. T. gracilis locally common. T. red-legged, local, but common. Mel. montanus species, few, local. Stirapleura, few. Melanoplus sage b. species, one only.

Orth. 27 + 467 = 494.

Other ins. 2 + 487 = 489.

1947.48 Markagunt Plateau, 4 miles W. of Long Valley Junction, Kane Co., Utah. Elev. (aner.) 7806 feet. Aug. 4, 1947. (R.)
Small flat with low scattered rabbit weed and much bare stone strewn silt.
No Orth. at all except 1 Aulocara, on bare ground.

Orth. 1 + 444 = 445.
Other ins. 15 + 489 = 504.

1947.49 Near Aspen Mirror Lake, Markagunt Plateau, 16 m. W. of Long Valley Junction, Kane Co., Utah. Elev. (aner.) 8400 feet. VIII.4.
Open glade (1/2 m. wide) in spruce, fir and aspen forest. Ground bare silt, washed in places, in others paved with pebbles, from cm. into and larger fragments of black lava, which underlies most of the surrounding ~~[illegible]~~ heavy timber. Plant cover very thin and scattered bunch grass, patches of a moss like reindeer moss, some alpine wild flowers and some patches of low sage.
Platybothrus, very local, not common, apparently all adults, unusually active.
Xanthippus sp., 1 grand female on bare ground, very sluggish, all seen. Camnula, not common, rather general, adults + juvs.
Melanoplus sp., all juvs., not common.
Bradynotes kaibab, very local ~~and~~ in small

1947.49 (cont.)

groups, all seen taken, apparently prefer areas with pebbles in the soil. Males are few, and much more active than the toad-like females.

Orth. 26 + 495 = 521.

Other ins. 10 + 504 = 514.

1947.50 Eleven miles W. of Long Valley Junction, Markagunt Plateau, Kane Co., Utah. Elev. (aner). 8200 feet. Aug. 4, 1947. (R.)

Open spots in tall pine and aspen forest. Ground red silt, in many places with thick paving of whitish broken stones. Cover largely sparse tall grass and some rabbit weed! Cratypedes neglectus, 6 taken, all seen. Trimerotropis suffusa, few. Trim. red-legged, one taken, all seen. Circotettix rabula, one taken, all seen.

Orth. 6 + 521 = 527.

Other ins. 0 + 514 = 514.

1947.51 Three miles S. of Long Valley Junction, Kane Co., Utah. Elev. (aner.) 7300 feet. Aug. 4, 1947. (R.)

Open stony spots on tall pine slopes. Lower cover cedar saplings and manzanita scrub (red bark & berries). Few Orth. Trimerotropis red-legged, one seen & taken. Trim. cyanipes, ditto, ditto. Trim. suffusa few, several taken. *Circotettix rabula*, one seen - taken.

Orth. 4 + 527 = 531.

Other ins. 0 + 514 = 514.

1947.52 Four miles N. of Glendale, Kane Co., Utah. Elev. (aner.) 6125 feet. August 4, 1947. (R.).

Floor of canyon through lava flows. Some bull pine, more deciduous trees and much heavy shrubbery. Lower down rabbit weed and tumble weed. Little Orth. *Melanoplus mex.* type, common in tumble weed and similar weedy growth. *Trim. pallidip.*, few. *Cratypedes neglectus*, one only seen & taken. *Oecanthus*, juv. swept.

Orth. 7 + 531 = 538.

Other ins. 14 + 514 = 528.

1947.53 Three miles W. of Mt. Carmel, Kane Co., Utah. Elev. 5400 feet (aner.). Aug. 5, 1947. (R.).

No Orth. Material swept from sage under open stands of juniper.

Orth. 0 + 538 = 538.

Other ins. 9 + 528 = 537.

1947.54 E. entrance (Mt. Carmel Road), Zion National Park, Kane Co., Utah. Elev. (chart) 5800 feet. Aug. 5, 1947. (R.)

Cover sage and rabbit weed on silt in area of juniper at foot of bordering cliffs. Psychomastax, a single individual nymph. Agenotettix, locally numerous. Trimerotr. bilobata, local on ground. Trimerotr. pallidip., frequent. Melanoplus sage species, few on sage.

Orth. 17 + 538 = 555.

Other ins. 15 + 537 = 552.

1947.55 Waterpocket Creek, 3 miles E. of East entrance to Zion National Park, Kane Co., Utah. Elev. (chart) 5946 feet. Aug. 5, 1947. (R.)

Roadside vegetation between wheat fields. Cover rabbit weed, thistle and short grass. Almost no Orth. Six ♂. or female Melanoplus all seen.

Orth. 4 + 555 = 559.

Other ins. 9 + 552 = 561.

1947.56 Red sand hills 8 miles S. of Mt. Carmel Junction, Kane Co., Utah. Elev. (aner.) 6000 ft. Aug. 5, 1947. (R.)

Red sand soil near foot of White Cliffs. Cover scattered juniper and pinyon with low sage cover, rabbit weed and some yucca.

Trimerotr. bilobata, freq. on bare ground, occas. flying into sage. Melanoplus sage br. species, few. Litaneutria, juv. running on sand. 5

Orth. 4 + 559 = 563.

Other ins. 0 + 561 = 561.

1947.57 Three miles S. of Fredonia, Coconino Co., Arizona. Elev. (aner.) 4700 feet. Aug. 5, 1947 (R.) Low knoll in broad plain. Sparse and scattered cover chiefly rabbit weed, low sage and the shrub called "~~junip~~ juniper" by the Mormons.

Sole orth. seen was Psychomastax, which was general but not common, ~~but~~ and swept only from "juniper."

Orth. 13 + 563 = 576.

Other ins. 0 + 561 = 561.

1947.58 Seven miles S. of Jacob's Lake, Kaibab Nat. Forest, Coconino Co., Arizona. Elev. (aner.) 8260 feet. Aug. 6. 1947. (R.)

In small open spot in tall pine and aspen forest, with a very few fir. Ground covered largely with broken stones, pine needles and similar forest litter.

Trimerotropis suffusa, a few. Trim. cyanipes, ditto. Bradynotes, 2 ♂♂, all seen after careful search, and these only in an area where the surface was almost entirely broken ~~of~~ small stones.

Orth. 8 + 576 = 584.

Other ins. 0 + 561 = 561.

1947.59 Fifteen miles S. of Jacob's Lake, Kaibab National Forest, Coconino Co., Arizona. Elev. (aner.) 8225 feet. Aug. 6, 1947. (R.)

Extensive glade in forest of pine, fir and aspen. Ground cover short grass and low annuals, many in flower. Surface places broken stone, one depressed area moist and swaley.

Aeropedellus, local, few. Camnula, locally numerous, chiefly in the moister area! Trimerotropis suffusa, local, several seen, ~~onto~~ one taken. Trimerotropis red-legged, locally numerous in stony areas. Bradynotes, 1♀ only, all seen, in stony area. Circotettix rabula, 1, all seen.

Orth. 18 + 584 = 602.

Other ins. 5 + 561 = 566.

1947.60 Immediate N. of Northern entrance to Grand Canyon Nat. Park (North Rim), Kaibab Forest, Coconino Co., Arizona. Elev. (appr.) 8450 ft. Aug. 6, 1947. (R.)

Edge of glade in forest of fir and aspen. Surface cover montane annuals, and scattered aspen & fir seedlings. Soil reddish, much broken small stone in same.

Aeropedellus local, not numerous, not very active. Camnula numerous, chiefly in plant cover. Bradynotes, 1♂, 1♀, taken at different spots in stony section, all seen. Melanoplus bruneri, relatively numerous, general, not very active and jumping ability not at all great.

Orth. 27 + 602 = 629.
Other ins. 4 + 566 = 570.

1947.61½ Base of Echo Cliffs. 2 m. S. of Navajo Springs. Coconino Co., Arizona. Elev. (appr.) 3500 feet. Aug. 7. 1947. (R.)

Red silt with much stone pavement & scattered boulders. Cover sparse, but composed of a number of species, such as a low sage, atriplex, and an ephedra-like plant, low yucca and clumps of sun-cured bunch grass. Absolutely no Orth. except 1 Pseudosermyle beaten from an open spidery green plant in road drain.

Orth. 1 + 629 = 630.
Other ins. 0 + 570 = 570

1947.62 Flagstaff, Coconino Co., Arizona.
Elev. 6900 feet (chart). Aug. 8, 1947. (R.)

On S.W. edge of town. Gravelly and stony bench with scattered bull pine. Cover chiefly rabbit weed of several types, one sticky yellow-flowered composite and some very short bunch grass. Much bare ground and many gravelly or stony spots.

Amphitornus, local, but not common. Agenotettix n. w., fairly numerous, active, generally in bare soil. Trimerotr. pallidip., very few, one taken. Trim. red-legged, very local, few. Cirrotettix coconino, 1 seen & taken, on bare ground. Cannula, few. Melanoplus flabellifer, abundant, active, general. Melanoplus femur-nigrum, very few, local. Mel. aridus? 1 ♀, all seen taken. Hesperotettix n. w., very local & scarce, one ♂ seen & lost, long search failed to disclose another of that sex, ♀♀ alone taken.

Orth. 41 + 630 = 671.
Other ins. 10 + 570 = 580.

1947.63 Twelve miles S.W. of Flagstaff at head of Oak Creek Canyon road grade, Coconino Co., Arizona. Elev. 6300 feet (aner.) Aug. 8, 1947. (R.)

Bull pine forest. Nothing in the way of Orth. in the forest itself. On stony side road surface and stony road edge Trim. red-legged, local but not numerous. Trim. pallidip. few. Circotettix coconino, one, all seen.

Orth. 7 + 671 = 678.

Other ins. 0 + 580 = 580.

1947.64 Seven miles S.W. of Flagstaff, Coconino Co., Arizona. (On Oak Creek Canyon road.) Elev. (aner.) 6950 feet. Aug. 8, 1947. (R.)

Roadside open ungrazed area in bull pine forest. Ground cover relatively dense, rabbit weed, golden-rod, aster, tall grass and many other low plants. Few bare spots, but much broken lava under foot.

Ageneotettix n. w., numerous, general. Amphitornus, local, not numerous. Camnula local, few. Trim. pallidip., few. Trim. red-legged, more numerous on bare spots. ~~Circotettix coconino, one taken, all seen.~~ Melanoplus franciscanus, 2 ♀♀, all seen, search for males unsuccessful. Melan. femur-nigrum, common, general. Mel. aridus?, very few. Hesperotettix sh. w., very few and local, all taken ♂♂, no ♀♀ found after long search.

1947.64 (cont.)

Orth. 31 + 678 = 709.
Other ins. 25 + 580 = 605.

1947.65 Seven miles W. of Ashfork, Yavapai Co., Arizona. Elev. (aner.) 4800 feet. Aug. 9, 1947. (R.).

Roadside with spaced clumps of bunch grass on red soil.

Parabacillus, 2 swept. *Melanoplus mex.* type, one, all seen. *Paropomala*, four seen in bunch grass, 1♂, 1♀ taken.

Orth. 5 + 709 = 714.
Other ins. 19 + 605 = 624.

1947.66 Near Chino, Yavapai Co., Arizona. Elev. (aner.) 5000 feet. Aug. 9, 1947. (R.) At S.W. foot of Aubrey Cliffs.

Roadside with tall bunch grass, a very little sage and a low composite of rabbit weed type.

Paropomala, numerous in bunch grass. *Melanoplus aridus*, 1♂, swept, all seen. *Hesperotettix festivus*, infrequent in composite.

Orth. 18 + 714 = 732.
Other ins. 8 + 624 = 632.

1947.67 Four miles W. of Hyde Park, Coconino Co., Arizona. Elev. (aner.) 5125 feet. Aug. 9, 1947. (R.)

Roadside brush grass, ~~with~~ on stony red soil. A few junipers scattered here & there. No Orth. at all except Ageneotettix jumping between grass tufts.

Orth. 1 + 732 = 733.
Other ins. 0 + 632 = 632.

1947.68 Hackberry, Mohave Co., Arizona. Elev. 3552 feet ~~got from R.R. data - this point exactly the same~~. Aug. 9, 1947. (R.).

In shallow wash from low hills. Common hackberry bushes, low rabbit weed, yucca and a few cacti.

Parabacillus, 2 swept. Ageneotettix, very few. Xanthippus, 1 ♀ on bare ground. Melanoplus sp., 1 juv. swept. ~~Hesperotettix tenuis~~ sp., 1 ~~swept~~. Hesperotettix n. sp., 2 swept. Careful search failed to reveal more of either of the latter two species.

Orth. 12 + 733 = 745.
Other ins. 0 + 632 = 632.

1947.69 Sacramento Valley, 10 m. N.W. of Kingman, Mohave Co., Arizona. Elev. 3200 feet. (aner.). Aug. 10, 1947. (R.)

Area with scattered tall brush grass, few creosote and mesquite bushes, many quite dry low bushes with sun-cured leaves and stems, and a few rabbit weed. Sky overcast and cool, after an unusual general flood-like deluge. Little to be found.

Pseudosermyle, 2 ♂ swept at different points. Paropomala, 1 ♂ + 1 juv. ♀ taken, all seen, latter on bare ground, former swept. Melanoplus sp., juvs., all swept.

Orth. 8 + 745 = 753.
Other ins. 6 + 632 = 638.

1947.70 Detrital Valley, 32 miles N.W. of Kingman, Mohave Co., Arizona. Elev. (aner.) 2775 feet. Aug. 10, 1947. (R.)

On pebbly and stony silt with very little plant cover, and this chiefly sun-dried brush grass, and a very few rabbit weed. No Covillea there. Wind very strong, but sun shining.

Orth. not in evidence exc. Derotmema l. laticinctum, which was very local and few in numbers.

Orth. 4 + 753 = 757.
Other ins. 2 + 638 = 640.

1947.71 Detrital Valley, 42 m. N.W. of Kingman, Mohave Co., Arizona. Elev. (aner.) 2275 feet. August 10, 1947. (R.)
Moderately irregular stand of *Covillea* with interspersed bunch grass and other typical desert bush. No Orth. seen except a few *Bootettix*, which were swept from *Covillea*.

Orth. 3 + 757 = 760.
Other ins. 3 + 640 = 643.

1947.72 Las Vegas Valley, 16 m. N.W. of Las Vegas, Clark Co., Nevada. Elev. (aner.) 2800 feet. Aug. 11, 1947. (R.)
Gentle open slope with areas of desert pavement. Cover chiefly scattered *Covillea*, brittlebush and other low composites, with numerous true yuccas and tree yuccas, latter usual not over a dozen feet in height.
No Orth. except a few *Bootettix* beaten from *Covillea*

Orth. 5 + 760 = 765.
Other ins. 2 + 643 = 645.

1947.73 Las Vegas Valley, 30 miles N.W. of Las Vegas (~~mesa +~~ bench to west of site of old R.R. Sta. of Owens), Clark Co., Nevada. Elev. (aner.) 3450 feet. Aug. 11, 1947. (R.)

An long low shoulder extending far out from the Spring Mts., with numerous shallow washes. Surface in part desert pavement, with small areas of lake beds. Plants, both bush and tree yuccas, Covillea, Atriplex and numerous other typical microphylls, many now leafless.

Bootettix local in Covillea, adults + juvs.
Cibolacris aridus, very few in stony washes.
Tanaocerus, 1 juv. swept from low plant in wash, search for more without result.
Trimerotropis pallidip., very few. Black-lined decticine (Idionotus?), 1 ♂ hiding head downward ~~in~~ + between saber-like of leaves at the tip of a young tree yucca. Much search failed to locate another.

Orth. 25 + 765 = 790.

Other ins. 3 + 645 = 648.

1947.74 Two miles S.E. of Indian Springs, Clark Co., Nevada. Elev. (aner. + chart) 3300 feet. Aug. 11, 1947. (R.)

Cover largely Covillea, with numerous microphylls, and a very little cactus.

Bootettix quite numerous, in Covillea, adults + juvs. Trimerotr. pallidip., few. Insara covilleae, scarce and well distributed in

Covillea, all seen taken by sweeping — green and brown phases represented.

Orth. 28 + 790 = 818.

Other ins. 0 + 648 = 648.

1947.75 Las Vegas Valley, 5 m. due W. of Corn Creek Springs, Clark Co., Nevada. Elev. (chart) 3100 feet. Aug. 11, 1947.

Swell in valley floor but on west slope of same; cover tree yucca + Free yucca, *Covillea* and *Atriplex*, etc.

No Orth. seen except *Bootettix* in *Covillea*.

Orth. 14 + 818 = 832.

Other ins. 0 + 648 = 648.

1947.76 Near Apex, 13 m. N. E. of Las Vegas, Clark Co., Nevada. Elev. (aner.) 2125 feet. Aug. 12, 1947. (R.).

In quite bare desert with very sparse plant cover, areas of desert pavement, and also sections of lake deposit. Com- open greasewood and various leafless or nearly leafless low scattered bushes. Nothing seen except 1 juv. *Tanaocerus*, swept from greasewood, and 1 adult ♂ *Eremopedes gracilis* hiding in a very low leafless brittle bush.

Orth. 2 + 832 = 834.

Other ins. 0 + 648 = 648.

1947.77 Between Apex and Dry Lake, Clark Co., Nevada. Elev. (aner.) 2100 feet. Aug. 12, 1947. (R.).

On gentle slope, stony with areas of desert pavement. Cover predominatingly Covillea and some brittle bushes, chiefly leafless.

Bootettix in Covillea. Melanoplus sp., juv. only, swept from brittle bush. Derotmema delicatulum, few and local, one taken from brittle bush, two from stony ground.

Orth. 11 + 834 = 845.

Other ins. 3 + 648 = 651.

1947.78 Near Crystal, Clark Co., Nevada. Elev. (an.) 1875 feet. Aug. 12, 1947. (R.)

Lake bd. silt with pebble cover. Vegetation: Covillea and brittle bush. No Orth. except Bootettix immat.: 2 in Covillea, 1 Trim. pallidip. on bare ground, and a few Derotm. delicatulum on bare ground.

Orth. 5 + 845 = 850.

Other ins. 4 + 651 = 655.

1947.79 wash area Between Dry Lake and Apex, Clark Co., Nevada. Elev. (aner.) 1975 feet. Aug. 12, 1947. (R.)

Tall brush grass along broad wash, with a few mesquite and numerous Covillea.

✓ Parapomala not common in brush grass and very wary. Derotmema delicatulum one seen but lost.

Orth. 3 + 850 = 853.

Other ins. 3 + 655 = 658.

1947.80 Mud flat with sink holding standing water, 5 m. S. of Railroad Pass, Clark Co., Nevada. Elev. (aner.) 1560 feet. Aug. 13, 1947. (R.)

Moderately large mud flat, in great part completely bare, dry and sun-cracked, with other areas moist and in small places with standing water from recent torrential rains. Plant cover, where present, largely salt bush.

Trimerotr. pallidip., few on bare ground. Trepidulus, 1 only, all seen, on mud. Anconia integra, numerous, on dry mud and in salt bushes, flying into latter when pursued. Derotmema delicatulum, very few, on dry mud surface.

Orth. 12 + 853 = 865.

Other ins. 0 + 658 = 658.

1947.81 West side outwash slopes of Eldorado Mts., 13 m. S. of Railroad Pass, Clark Co., Nevada. Elev. (an.) 2050 feet. Aug. 13, 1947. (R.)

Greasewood (Covillea) and brittle bush on broken stone and pebble slope. Bootettix infreq. in Covillea. Ligurotettix, a single one except

1947.81 (cont.)
from the same.
Orth. 7 + 865 = 872.
Other ins. 2 + 658 = 660.

1947.82 Twelve miles N. E. of Searchlight, Clark Co., Nevada. Elev. (aner.) 3000 feet. Aug. 13, 1947. (R.)

Greasewood and brittle brush, with some medium-height bunch grass.

Stagmomantis californica beaten out of *Covillea*. *Bootettix* infreq. in same.

Orth. ~~7~~5 + 872 = ~~874~~.877
Other ins. ~~2~~3 + 660 = ~~662~~.663

1947.83 Five miles N. of Searchlight, Clark Co., Nevada. Elev. (aner.) 3450 feet. Aug. 13, 1947. (R.)

Bench with scattered tree yuccas, greasewood, much sun-cured bunch grass, all-thorn and var. types of brittle bush.

Agroecotettix 1 seen - Taken ~~in~~ on dry ~~grass~~ ground. *Paropomala*, locally present in bunch grass and brittle brush. *Eremopedes gracilis*, 1♀ in dry bunch grass. *Melanoplus* sp., juv. from brittle bush.

Orth. 10 + 877 = 887.
Other ins. 0 + 663 = 663.

1947.84 Eighteen miles S. of Searchlight, Clark Co., Nevada. (Very close to Cal. state line) Elev. (ann.) 2500 feet. Aug. 13, 1947. (R.)

Greasewood and little brush with almost no sun-cured bunch grass.

Bootettix in Covillea. Two Insara covilleae swept from same. 1 juv. c̄ 1 ad. Stagmomantis calif. from same situation.

Orth. 21 + 887 = 908.
Other ins. 6 663 = 669.

1947.85 South slope of Mohave Mts., 16 m. S. of Needles, San Bernardino Co., Cal. Elev. (ann.) 2100 feet. Aug. 14, 1947. (R.).

Rolling slopes of detritus with many shallow washes among numerous points of hard rock. Plant com. open – Covillea, var. kinds of little bush, a few yucca, and "old man" cholla, and numerous ocotillo, as well as a leafless gnarled and gouty shrub.

Bootettix, local in Covillea, chiefly immat. Ligurotettix, local in Covillea, on stems, lost several in addit. to those collected. Melanopli sp.: juv., swept from little bush.

Orth. 23 + 908 = 931.
Other ins. 4 + 669 = 673.

1947.86 Broad bottom wash, draining eastward toward Colorado River (look up on topographic maps for name), between Mohave Mts. and Sawtooth Range, 30 m. by road S. of Needles, San Bernardino Co., Cal. Elev. (aner.) 1100 feet. Aug. 14, 1947. (R.)

Many channeled wash with numerous palo verde trees, Chilopsis (?) and rather thick stands of heavy bushes. Doubtless constant underflow.

Bootettix in Covillea. Melanoplus browni; one swept from leafless bush. Eremopedes gracilis; one swept from leafless bush.

Orth. 5 + 931 = 936.

Other ins. 3 + 673 = 676.

1947.87 Five miles N. of Rose, San Bernardino Co., California. Elev. (aner.) 1025 feet. Aug. 14, 1947. (R.)

Open Covillea stand in silt and gravel. Nothing but Bootettix in Covillea and 1 Trimerotr. pallidip. on bare ground. Search for other ground dwelling forms produced nothing.

Orth. 8 + 936 = 944.

Other ins. 8 + 676 = 684.

1947.88 Eleven miles S. of Vidal, Riverside Co., Cal. (Edge of bench on W. side of VIII.14 Colorado River.) Elev. (aner.) 200 feet. Lava slope with Covillea and little else. Juv. Bootettix in former, and 1 Cibolacris aridus from dry wash. No other Orth. seen.

Orth. 3 + 944 = 947.
Other ins. 0 + 684 = 684.

No number. Blythe, Riverside Co., Cal. Aug. 14, 1947. (R.). Blattella on bed linen and on wall of toilet at auto court. Unafraid in all situations. Orth. 3 + 947 = 950
Other ins. 0 + 684 = 684

1947.89 Twelve miles E. of Ehrenberg, Yuma Co., Arizona. Elev. (an.) 1200 feet. Aug. 15, 1947 (R.). (At N. end of Dome Rock Mts.)
Slopes of broken rock, chiefly volcanic and quartz, with sections of "desert pavement." Cover chiefly scattered Covillea, palo verde, few ocotillo and saguaros, and occ. brittle bushes. No Orth. except Bootettix in Covillea.

Orth. 6 + 950 = 956.
Other ins. 0 + 684 = 684.

1947.90 near Foot of west slope of Plomosa Mts., 25 m. E. of Ehrenberg, Yuma Co., Arizona. Elev. (an.) 1260 feet. Aug. 15, 1947. (R.)

Flat of "desert pavement," thickly strewn various sized lava fragments. Cover sparse Covillea, ocotillo, sahuaro, "old man" cholla, etc.

No Orth. at all except Bootettix in Covillea.

Orth. 2 + 956 = 958.

Other ins. 0 + 684 = 684.

1947.91 Bear Hills, 36 m. E. of Ehrenberg, Yuma Co., Arizona. Elev. (an.) 3600 feet. Aug. 15, 1947. (R.)

Hill slopes of finely broken stone strewn with various sized lava fragments. Cover chiefly Covillea with a few sahuaros and "old man" cacti. A nearby wash had tall bunch grass.

Bootettix in Covillea, chiefly juvs. 1 Trimerotro. pallidip., on bare surface. No other Orth. seen.

Orth. 8 + 958 = 966.

Other ins 1 + 684 = 685.

1947.92 Granite Wash Canyon, in Granite Wash Hills, near Hope, Yuma Co., Arizona. Elev. (av.) 1750 feet. Aug. 15, 1947. (R.)

Rich wash vegetation of Covillea, ocotillos, saguaros, paloverde, etc.

No Orth. at all except Bootettix in Covillea and 1 Melanoplus browni? in bush which I think is Encelia (virtually leafless but bulky and 2-3' high, largely sun-cured).

Orth. 5 + 1966 = 971.

Other ins. 3 + 685 = 688.

1947.93 Two miles E. of Wenden, Yuma Co., Arizona. Elev. (av.) 2040 feet. Aug. 15, 1947. (R.)

Roadside brittle bush, creosote, etc.

No Orth. except Bootettix from Covillea, and 1 juv. Melanoplus sp. ♂ kept.

Orth. 5 + 971 = 976.

Other ins. 0 + 688 = 688.

1947.94 Three miles west of Golden, Yuma Co., Arizona. Elev. about 2000 feet. Aug. 15, 1947. (R.)

Roadside with Covillea + wash vegetation.

No Bootettix seen but 3 immat. Rhabdonatites were swept from two bushes of Covillea. Schistocerca vaga, one flushed in wash & captured.

Orth. 4 + 976 = 980.

Other ins. 3 + 688 = 691.

about 2450 feet.

1947.95 Forepaugh, Maricopa Co., Arizona. Elev. ? church (RR. St.). Aug. 15, 1947. (R.).
Rich but badly washed roadside bunch grass and Covillea on very heavily washed flat lands. No Orth. at all except 1 Trimerotr. pallidip., on gr., and 1 Melanoplus mex. type swept from bunch grass.
Orth. 2 + 980 = 982
Other ins. 2 + 691 = 693.

1947.96 Wickenburg, Maricopa Co., Arizona. Elev. (chart) 2070 feet. Aug. 16, 1947.
Gryllus in cabin. Heavy assault under electric light. All other material in salt grass ( ), tall & short about athletic track in town. Orphulella locally common in taller gr. Syrbula very local, not numerous. Opeia in shorter grass & very local. Melanoplus juv. in Orphulella common.
Orth. 28 + 982 = 1010.
Other ins. 8 + 693 = 701.

1947.97 Cactus Gardens, 8 mi. S. E. of Wickenburg, Maricopa Co., Arizona. Elev. (an.) 1800 feet. Aug. 17, 1947. (R.)
Hill slopes with Covillea, saguaro & ocotillo. Trimerot. pallidip., on bare ground. Psoloessa fem., on same, one taken. No other Orth. seen.
Orth. 2 + 1010 = 1012.
Other ins. 2 + 701 = 703.

1947.98 Near Wittmann, Maricopa Co., Ariz. Elev. (aner.) 1600 feet. Aug. 17, 1947. (R.)

Roadside with rabbit weed, Covillea, paloverde, short bunch grass and one ~~[illegible]~~ other plants.

Psoloessa 1 on bare ground. Paropomala 2 swept from grass. All Orth. seen.

Orth. 3 + 1012 = 1015.

Other ins. 5 + 703 = 708.

1947.99 Near Litchfield Park, Maricopa Co., Arizona. Elev. (aner.) 700 feet. Aug. 17, 1947. (R.).

Roadside vegetation near cleared and partly irrigated land, with tall rabbit weed, Atriplex bush, etc.

No Orth. except a few Aeoloplides in their favorite bush and other desert vegetation.

Orth. 7 + 1015 = 1022.

Other ins. 8 + 708 = 716.

1947.100 Near Hassayampa, Maricopa Co., Arizona. Elev. (aner.) 550 feet. Aug. 17, 1947. (R.).

Sparse greasewood cover on bare + strewn slope. No Bootettix, nothing seen in way of Orth. except Ligurotettix swept from Covillea and Trim. pallidip. on ground.

Orth. 3 + 1022 = 1025.

Other ins. 7 + 716 = 723.

1947.101 Twelve miles N. of Gila Bend, along Gila River, Maricopa Co., Arizona. Elev. (appr.) 500 feet. Aug. 17, 1947. (R.)
Virtually nothing but Atriplex bush on semi-baked silt of Gila River flat.
Anconia local and very active, flying usually into Atriplex bush. Aeoloplides few in same bush. Trimerotr. pallidip., few on bare ground. Trepidulus, one, all seen, on ditto.

Orth. 6 + 1025 = 1031.

Other ins. 0 + 723 = 723.

1947.102 Road pass in Maricopa Mts., 9 m. E. of Gila Bend, Maricopa Co., Arizona. Elev. (appr.) 850 feet. Aug. 17, 1947. (R.)
Covillea, palo verde, saguaro, mesquite, etc. bordering a very large wash.
No Orth. except Bootettix in Covillea and Cibolacris on bare ground.

Orth. 2 + 1031 = 1033.

Other ins. 2 + 723 = 725.

1947.103 Vekol Wash Road Crossing, middle of Vekol Valley, 29 m. E. of Gila Bend, Maricopa Co., Arizona. Elev. (appr.) 1450 feet. Aug. 17, 1947. (R.)
Roadside wash with very tall and luxuriant rabbit weed and greasewood. A very little short grass here and there.

Bootettix, few, chiefly juvs., in Covillea. Hesperotettix local in rabbit weed, very active and shy. Melanoplus sp., one adult in rabbit weed, no others seen. Melanoplus sp., 1 juv., swept. Cibolacris, one on bare ground. Derotmema l. laticinctum, 1 juv. on bare ground, no adults seen. 1 Rhabdomatites swept from Covillea. Orth. 13 + 1033 = ~~1033~~ 1046. Cycloptilum — an juv. swept from Covillea.
Other ins. 3 + 725 = 728.

1947.104 Picacho, ~~Maricopa~~ Pinal Co., Arizona. Aug. 18, 1947. Elev. (an.) 1400 feet. ~~[illegible]~~ (R.).

Roadside rabbit weed, grass and Covillea. No adult Orth., only 1 juv. melanoplid all seen.

Orth. 1 + 1046 = 1047.
Other ins. 9 + 728 = 737.

1947.105 Between Redrock and Picacho, near foot of Picacho Peak, Pinal Co., Arizona. Elev. (an.) 1500 feet. Aug. 18, 1947. (R.).

Roadside drain and flat bank, all of which had recently been flooded, much short grass on level ground, some tall rabbit weed, and clumps of tall cane-like grass, an occasional mesquite, and a few other bushes.

Encoptolophus texensis local, in short grass.

1947.105 (cont.)

Aeoloplides few, in various plants, mainly flying into mesquite.
Melanoplus desultorius, a single one nmph.
Hesperotettix, local, in rabbit weed and in tall grass. Eremopedes albofasciatus, 1 nmph from rabbit weed.

Orth. 21 + 1047 = 1068.
Other ins. 12 + 737 = 749.

1947.106 West side of Robles Pass, Tucson Mts., Pima Co., Arizona. At foot of Cat Mtn. Elev. ~~[illegible]~~ about 3000 feet. Aug. 19, 1947. (R.).

Wash slopes with saguaros, palo verde, acacia and very few Covillea. Surface had been heavily washed in last few weeks.

No Orth. seen except Trim. pallidip., and 1 juv. Cycloptilum nmph.

Orth. 2 + 1068 = 1070.
Other ins. 6 + 749 = 755.

1947.107 Six miles E. of Robles Ranch, Avra Valley, Pima Co., Arizona.
Elev. (aner.) 2380 feet. Aug. 19, 1947.
(R.)

Rabbit weed and similar vegetation along washes and in flat, with scattered mesquite and cholla.

Very few adult Orth. Pseudosermyle

18 swept. Psoloessa, very few, on ground. Hesperotettix, very few adults, juvs. more numerous, in rabbit weed and similar bush. Melanoplus sp. juv., few, swept. Cycloptilum juvs. swept. Trepidulus, 1, on bare gr. Parapomala, 1, from bunch grass.

Orth. 17 + 1070 = 1087.

Other ins. 5 + 755 = 760.

1947.108 Six miles W. of Robles Ranch, Avra Valley, Pima Co., Arizona. Elev. (an.) 2600 feet. Aug. 19, 1947. (R.).

Among low hills bordering Roskruge's mts. (At wash, Covillea — largely in full bloom —, acacia and mesquite, with some rabbit weed.

Hesperotettix, few adults, in rabbit weed. Bootettix, but 1 after sweeping numerous Covillea. Juv. acridid ? ♂ ? swept from ground. Dichopetala, 1 very small juv. swept from rabbit weed. Cycloptilum, ♀ juv. swept. Trim. pallidip., few, on gr. [illegible], 1 fem. ad. + 1 juv., all num, swp.

Orth. 8 + 1087 = 1095.

Other ins. 4 + 760 = 764.

1947.109 Robles Ranch, Avra Valley, Pima Co., Arizona. Elev. (av.) 2500 feet. Aug. 19, 1947. (R.)

On flat immediately to east of ranch. Much of surface recently under sheet wash. Rabbit weed in wash and on adj. flat among mesquite and acacia. Much very short green grass in limited areas evidently well watered.

Hesperotettix largely immature, on rabbit weed. Pseudosermyle, 2 not quite adult, swept. *Ēremopedes albofasciata*, much swept from rabbit weed.

Orth. 8 + 1095 = 1103.
Other ins. 6 + 764 = 770.

1947.110 Northern border of Tucson, Pima Co., Arizona. (Near west point of Pusch Ridge of Santa Catalina Mts.) Elev. (av.) 2500 feet. Aug. 20, 1947. (R.)

Open stand of cholla, prickly pear, mesquite and palo verde, with numerous low bushes. No *Covillea*.

Almost no Orth. A few *Psoloessa* and *Trim. pallidip.* on ground. One *Ēremopedes albofasciata* swept from low bush. One juv.

Cycloptilum swept

Orth. 4 + 1103 = 1107.
Other ins. 0 + 770 = 770.

1947.111 Near Canada del Oro, 18 m. N. of Tucson, Pima Co., Arizona. Elev. (an.) 2870 feet. Aug. 20, 1947. (R.)

Roadside tall rabbit ~~grass~~ weed, brush grass, a lower rabbit weed, and a number of other species of low bushes, plus many cholla and some prickly pear, also a number of low cacti, plus the giant group.

Stagmomantis 1 juv. swept. Parabacillus, locally numerous in the brush grass, almost all juvs. ✓Paropomala, local in same, not numerous. Hesperotettix very local and infreq. in rabbit weed. Dichopetala 1 small juv. swept. Cycloptilum, 1 juv. swept. Psoloessa few. Juvs. of Ageneotettix - Opeia in gr.

Orth. 33 + 1107 = 1140.

Other ins. 4 + 770 = 774.

1947. 112 Near Oracle Junction, Pinal Co., Arizona. Elev. (an.) 3675 feet. Aug. 20, 1947. (R.).

Gravelly brush with brush grass, low bushes and much very short green grass just coming up - i.e. due to recent rains.

✓Paropomala local, in brush grass. Psoloessa, local and active, on bare ground.

Trim. pallidip., few. Cibolacris, few and very local on gravel. Hesperotettix, local and chiefly immat., in brush grass. Melanoplus

1947.112 (cont.)

sp., all juv., excpt. Eremopedes albofasciata one out of bunch grass. Cycloptilum, 1 juv. excpt.

Orth. 15 + 1140 = 1155.
Other ins. 9 + 774 = 783.

1947. ~~[illegible]~~ 113 Oracle, Pinal Co., Arizona. Elev. (an.) 4650 feet. Aug. 20, 1947. (R.). Gravelly roadside bench with bunch grass, very low green annuals, low acacias, and numerous shrubs. Large acacia, yucca and Mamillaria cacti scattered about. Cordillacris, local on ground. Psoloessa, not common on ground. Paropomala, local. Conozoa carinata, in moderate numbers on ground. Trimer. red-legged, infreq. Heliastus benjamini, a few, local. Lactista, a single one taken. Heliaula rufa, a few, very local. Derotmema h. latic. local, ads. & juv.! Oecanthus 1 juv. excpt.
Cibolacris v. few.

Orth. 35 + 1155 = 1190.
Other ins. 19 + 783 = 802.

1947.114 Five miles W. of Oracle, Pinal Co., Arizona. Elev. (an.) 4225 feet. Aug. 20, 1947 (R.)
Tall rank weeds (roadside), tall rabbit weed, much medium-height bunch grass, Bare ground between gravelly.

Parabacillus, locally numerous, juvs. Stagmomantis juvs., sev. swept. Syrbula fuscovittata, 1♂ swept at road edge, all seen. Amphitornus, 1 on ground, all seen. Psoloessa not common on ground. Hesperotettix many juvs, few adults, local in rabbit weed. Dichopetala, 1 sm. small juv. swept. Paropomala, sev. in bunch grass.

Orth. 23 + 1190 = 1213.
Other ins. 5 + 802 = 807.

1947.115 Betw. Sahuarito and Hartt, Pima Co., Arizona. Elev. (av.) 2675 feet. Aug. 21, 1947. (R.)

Roadside tall grass and clumps of tall weeds among tall chollas and mesquite. No Orth. exc. 1 Paropomala swept from grass and sev. juv. Cycloptilum swept. juv. Litaneutria, on gr.

Orth. 5 + 1213 = 1218.
Other ins. 6 + 807 = 813.

1947.116 Three miles S. of Continental, Pima Co., Arizona. Elev. (av.) 2825 feet. Aug. 21, 1947. (R.).

Roadside tall bunch grass, with short grass in recently wet areas, mesquite, acacia + numerous low bushes.

No adult salt. Orth. exc. [illegible] Hesperotettix juvs. swept

1947.116 (cont.)

from various things. Parabacillus sev., very local in distribution in tall grass. Pseudosermyle more general in same, both sexes taken. Eremiopedes albofasc., 1 nmph. Cycloptilum nmph. Oecanthus 1♀ nmph.

Orth. 13 + 1218 = 1231. [illegible] 1 juv. nmph.

Other ins. 12 + 813 = 825.

1947.117 Tubac, Santa Cruz Co., Arizona. Elev. (an.) 3250 feet. Aug. 29, 1947. (R.)

In tall grass and rabbit weed and other low weeds, with mesquite and acacia, along shallow wash and in stony brush. Nothing in latter.

Pseudosermyle, a few nmph from grass. Parabacillus, ditto. Syrbula fuscovittata, sev. ♀, 1 juv. in lush weeds. ~~Oecanthus? 1 juv., nmph.~~ Ageneotettix, 1 ad. + numer. juvs. on ground. Hesperotettix, juvs. only, in rabbit weed. Cycloptilum juvs., nmph. Paropomala in tall grass.

Orth. 17 + 1231 = 1248.

Other ins. 29 + 825 = 854.

1947.118 Calabasas, Santa Cruz Co., Arizona. El. (ap.) 3750 feet. Aug. 21, 1947. (R.).

Roadside ditch with tall rank weeds and an equally tall cane-like grass. Swarming with immature acridids, few adults. Tried to get representatives (adults) of species represented.

Arphia crassa, 1 only, roadside. Morseiella, ♂♂ adult abundant, no adult ♀♀ evident. Melanoplus diff., 1 ad. (hn.) all in that stage seen. Melanoplus lakinus 1 ad. ~~Phaetaliotes neb. 1 ad. & numer. juvs.~~ Conalcaea 1 ad. Syrbula fuscov. 1♂ only. Hesperotettix, 1 ad.

Orth. 34 + 1248 = 1282.
Other ins. 2 + 804 = 806.

1947.119 ~~[illegible]~~ Two miles S. of Amado, Santa Cruz Co., Arizona. El. (ap.) 3200 feet. Aug. 21, 1947. (R.).

Bunch grass, low composites and a few succulent weeds. Some bare ground. Syrbula fuscov. 1♀. Psoloessa, few on gravel. Mestobregma k. mex., numerous, most adults, on gravelly areas. Brachystola tsd. very nu. juvs. Paropomala in bunch grass, numer. ad. & juvs. Conozoa sul., 1 only. Hesperotettix few.

Orth. 18 + 1282 = 1300
Other ins. 5 + 806 = 861 -

1947.120 Near Rita, Pima Co., Arizona. Elev. (aner.) 2800 feet. Aug. 22, 1947. (R.)

Heavy short grass and flowering annuals, bordered by brush with Covillea and with stony surface.

No Orth. other than Parabacillus nympt and Hesperotettix ad. + juv. Litaneutria, 1 juv. on ground.

Orth. 7 + 1300 = 1307. Paropomala, 1 juv. nympt.

Other ins. 16 + 861 = 877.

1947.121 Two miles E. of Pantano, Pima Co., Arizona. Elev. (aner.) 3600 feet. Aug. 22, 1947. (R.)

Roadside bunch grass, both tall and short, flowering annuals, and low perennial shrubs. Scattered low mesquite and areas of stony brush. Nothing on latter.

Paropomala!, local in grass. Syrbula fusco-vittata, few in grass. Hesperotettix, local, juvs + adults. Pseudosermyle 1♂ nympt. Ĕremopedes albofasciata, 1 nympt.

Orth. 10 + 1307 = 1317.

Other ins. 17 + 877 = 894.

1947.122 Six miles E. of Benson, Cochise Co., Arizona. Elev. (aner.) 4300 feet. Aug. 22, 1947. (R.)

Moderately heavy bunch grass, both tall and short, low shrubs, occas. mesquite.

Pseudosermyle, ad. ♂, 1 ♀, swept. *Psoloessa*, one only, all seen. *Hesperotettix*, few taken. *Cycloptilum*, swept.

Orth. 12 + 1317 = 1329.
Other ins. 4 + 894 = 898.

1947.123 South end of Little Dragoon Mts., Cochise Co., Arizona. Elev. (aner.) 5350 feet. **check**, prob. 2-400 feet too high. Aug. 22, 1947. (R.)

On crumbly weathered rotten granite grit with cover of scattered tall grass, nolina, cacti, agave, etc.

No Orth. at all except. 1 *Paropomala*, swept from grass.

Orth. 1 + 1329 = 1330.
Other ins. 3 + 898 = 901,

1947.124 Sulphur Springs Valley, 3 m. E. of Willcox, Cochise Co., Arizona. Elev. (aner.) 4450 feet. Aug. 22, 1947. (R.)

Bunch and various low composites on first slight lift from valley flat.

Stagmomantis, 1 juv. swept. *Diapheromera*, 18 swept. *Pseudosermyle*, 1 ♀ swept. *Hesperotettix*, 1 ad. swept.

Orth. 4 + 1330 = 1334.
Other ins. 4 + 901 = 905.

1947.125 Railroad Pass, Cochise Co., Arizona. Elev. ~~(aner.) 4650 feet (check)~~ 4386 feet. Aug. 22, 1947. (R.).

Curly bunch grass and tall straight bunch grass, roadside. A few nolinas.

Paratrillus usual, swept. Paropomala juvs. only, swept. Opeia, juvs. only, swept.

Orth. 14 + 1334 = 1348.
Other ins. 8 + 905 = 913.

1947.126 Near Olga, San Simon Valley, Cochise Co., Arizona. Elev. (ck.) 3614 feet. Aug. 23, 1947. (R.)

Covillea and black brush with low composites, latter becoming green from very recent rain. Black brush also coming out in leaf.

No adult Orth. except one Trim. pallidip. not taken.

Rhabdoceratites, juv. swept from Covillea. Stagmomantis juv. ditto from composites. No trace of either Bootettix or Goniatron.

Orth. 2 + 1348 = 1350.
Other ins. 5 + 913 = 918.

1947.127 Vanar, west side of Stein's Pass, Peloncillo Mts., Cochise Co., Arizona. Elev. (ck.) 3900 feet. Aug. 23, 1947. (R.)

Open stand of Covillea, with sparse black brush and rabbit weed and tall bunch grass.

No adult Orth. & *Hesperotettix*, very few in rabbit weed. Juv. *Stagmomantis*, beaten from *Covillea*. Juv. *Insara* ditto.

Orth. 5 + 1350 = 1355.

Other ins. 2 + 918 = 920.

1947.128 Seven miles W. of Lordsburg, Hidalgo Co., New Mexico. Elev. (ap.) 4200 feet. Aug. 23, 1947. (R.).

Covillea, few blackbrush & low composites, some rabbit weed.

Hesperotettix few, local in rabbit weed. *Rhabdouratites*, 1 juv. swept from *Covillea*. *Insara* juv., swept from ditto.

Orth. 6 + 1355 = 1361.

Other ins. 0 + 920 = 920.

1947.129 Near Separ, Grant Co., New Mexico. Elev. (appr.) 4500 feet. Aug. 23, 1947. (R.).

Roadside curly grass, some tall bunch grass, low composites, *Koeberlinia* and numerous areas of clean washed adobe from recent heavy rains.

Paropomala, few in all types of grass. *Parabacillus*, several swept from grass. *Opeia* juvs., swept.

Orth. 7 + 1361 = 1368.

Other ins. 2 + 920 = 922.

1947.130 Continental Divide, 2 m. E. of Separ, Grant Co., New Mexico. Elev. (ch.) 4585 feet. Aug. 23, 1947. (R.)

Shallow recently flooded areas with low rabbit weed, bunch grass, curly grass, gourds and various other plants. Dry adobe areas with light gravel shingling with scattered black brush.

Goniatron, infrequent in black brush, sometimes jumping out upon the bare ground.

Drepanopterna, 1 ad. ♂ numer. juvs., on ground.

Psoloessa delicatula, 1, ad. seen, on bare ground. Heliaula rufa, 2 seen, 1 captured, on bare ground.

Orth. 19 + 1368 = 1387.
Other ins. 11 + 922 = 933.

1947.131 Betw. Gage and Deming, near north base of Red Mtn., Luna Co., New Mexico. Elev. (an.) 4400 feet. Aug. 23, 1947. (R.).

Heavily grazed, very short curly grass in open mesquite. No Orth. at all except juvs. ✓ Paropomala

Orth. 2 + 1387 = 1389.
Other ins. 0 + 933 = 933.

1947.132 Eight miles N.E. of Deming, Luna Co., New Mexico. Elev. (ap.) 4350 feet. Aug. 24, 1947. (R.)

Roadside heavily washed from rain of preceding night. Curly bunch grass, low rabbit weed and occasional *Covillea*.

Trimerotr. *pallidip*. sev. on bare soil. *Opeia* 1 juv. swept. ~~*Paropomala* 1 juv. swept.~~

Orth. 2 + 1389 = 1391.
Other ins. 1 + 933 = 934.

1947.133 Four miles N.E. of Florida, Luna Co., New Mexico. Elev. (ap.) 4575 feet. Aug. 24, 1947. (R.)

In tall grass, low curly grass, rabbit weed, thistle and scattered yuccas. ✓

Parabacillus local in curly grass. *Paropomala*, very few, in grass. *Melanoplus* *aridus* (?) very few and local in low plant cover. *Dactylotum*, in one spot only in curly grass, 1♂ 1♀, + 1♂ taken dead from spider web. *Trimerotr*. *pallidip*., few on bare ground. *Eremopedes* *albofasciata*, 2♀ seen in different yuccas, head down at base of leaves, one captured, the other escaped. *Agenotettix* 1 only, on ground. *Syrbula* *fusco-v*., 1 juv. ♀ in grass.

Orth. 16 + 1391 = 1407.
Other ins. 14 + 934 = 948.

1947.134 Four miles N. ~~W.~~ E. of Nutt, Luna Co., New Mexico. Elev. (an.) 4525 feet. Aug. 24, 1947. (R.).

In short curly grass, taller bunch grass, occasional rabbit weed + other lower composites, thistle, etc. on broken stone and gravel surface, some recently heavily washed. Paravnillus few, nympt. Pseudoeirmyle, appar. 2 species, locally numerous in various grasses and low composites. Drepanopterna? juvs. nympt. Trimerotr. Large banded species, 1 only seen + taken on stony surface. Melanoplus aridus (?) 1♀ on ground between low bushes. ✓Paropomala, not common but general. Ageneotettix 1 only, on gr.

Orth. 28 + ~~1377~~ 1407 = 1435.

Other ins. 10 + ~~937~~ 948 = 958.

1947.135 Five miles S. of Caballo, Sierra Co., New Mexico. Elev. (an.) 4100 feet. Aug. 24, 1947. (R.)

Creosote bush + mesquite on bench. Rhabdoceratites juv. nympt from Covillea. Bootettix 1 ad. + juvs. + seen in same.

Orth. 7 + 1435 = 1442.

Other ins. 0 + 958 = 958.

1947.136 Eleven miles S. of Hot Springs, Sierra Co., New Mexico. El. (an.) 4550 feet. Aug. 24, 1947. (R.).

Brush with Covillea predominating and much fewer black brush, latter just coming into full leaf.

Bootettix, ad. + juv. swept from *Covillea*, not numerous.

Rhabdonatites, juvs. ditto.

Goniatron, one swept out of black brush, but lost!

Orth. 10 + 1442 = 1452.
Other ins. 0 + 958 = 958.

1947.137 Six miles N. of Hot Springs, Sierra Co., New Mexico. Elev. (an.) 4800 feet. Aug. 25. 1947. (R.)

On high brush with almost pure *Covillea* stand.

Rhabdonatites, 1 ad. ♀ and sev. juvs. swept from *Covillea*. *Bootettix* usual in *Covillea*, ads. + juvs. mostly adult.

Orth. 9 + 1452 = 1461.
Other ins. 2 + 958 = 960.

1947.138 Twenty-two miles N. of Hot Springs, Sierra Co., New Mexico. Elev. (an.) 5000 feet. Aug. 25, 1947. (R.).

High brush with open cover almost entirely Covillea, black brush & bunch grass. Rhabdocnatitts 1 ad. ♂ swept from Covillea. Ageneotettix very few on stony surface. Goniatron infreq. in black brush. High wind made capture very difficult – 1 taken. Mestobregma Capito 2 seen, 1 taken, on ground. Mel. sp. juv. swept.

Orth. 6 + 1461 = 1467.
Other ins. 0 + 960 = 960.

1947.139 Thirty-five miles N. of Hot Springs, Sierra Co., New Mexico. Elev. (an.) 5200 feet. Aug. 25, 1947. (R.)

Short grass in high brush. An occasional Covillea. No Orth. at all.

Orth. 0 + 1467 = 1467.
Other ins 9 + 960 = 969.

1947.140 Between Bernardo and Rio Salado road crossing, Socorro Co., New Mexico. Elev. (an.) 5000 feet. Aug. 25, 1947. (R.)

Sand dunes with open plant cover consisting almost entirely of a single species of plant - a strict, apparently leafless Ephedra-like form.

No Orth. except numerous Diapheromera adults of both sexes in above plant.

Orth. 16 + 1467 = 1483.

Other ins. 2 + 969 = 971.

1947.141 Bernardo, Socorro Co., New Mexico. Elev. (an.). 5250 feet. Aug. 25, 1947. (R.)

Roadside rabbit weed.

No Orthoptera

Orth. 0 + 1483 = 1483.

Other ins. 12 + 971 = 983.

1947.142 Near Belen, Valencia Co., New Mexico. Elev. (an.) 4930 feet. Aug. 25, 1947. (R.).

Bare wash & other areas with tumble weed.

Trim. pallidip. two, in larv. p.

Melan. [illegible] type, one only, all seen, in tumble weed.

Orth. 3 + 1483 = 1486.

Other ins. 0 + 983 = 983.

1947.143 Isleta, Bernalillo Co., New Mexico.
Elev. (aner.) 4825 feet. Aug. 26, 1947. (R.)

On river-bottom land in relatively loose sand with rabbit weed and other low bushes, some in bloom.

Sole Orth. seen & taken, 1 Trimerot. texana on sand.

Orth. 1 + 1486 = 1487.
Other ins. 17 + 983 = 1000.

1947.144 Two miles W. of Los Lunas, Valencia Co., New Mexico. Elev. (an.) 4900 feet.
Aug. 26, 1947. (R.)

On sandy soil of first bench west of Rio Grande, ~~with~~ with scattered low bunch grass and very few rabbit weed and other plants.

Melanoplus bowditchi type, one flushed from bush, alighted on ground. ✓Paropomala several in bunch grass. Pseudoeremyle 1♂ swept from bunch grass.

Orth. 3 + 1487 = 1490.
Other ins. 5 + 1000 = 1005.

1947.145 Eleven miles W. of Los Lunas, Valencia Co., New Mexico. Elev. (aner.) 5300 feet. Aug. 26, 1947. (R.)

Sandy surface with bunch grass, tall in hollows, and scattered sage-like bushes.

Litaneutria, 1♀ running at base of bunch grass. Opeia, 1 juv. nmpt. Paropomala, local & not common in bunch grass. Trimerot. texana, 1, all seen & taken on bare ground. Trim. red-legged, 1, all seen, on ground. Melanoplus atlanis type, few in drain section with slightly higher growth.

Orth. 11 + 1490 = 1501.
Other ins. 12 + 1005 = 1017.

1947.146 Five miles W. of Rio Puerco (R.R. sta.), Valencia Co., New Mexico. Elev. (aner.) 5200 feet. Aug. 26, 1947. (R.).

Surface with bunch grass and very low shrubs, occas. low narrow-leafed yucca and scattered junipers.

Sole Orth. - Paropomala, infreq. in var. types of low ground cover.

Orth. 3 + 1501 = 1504.
Other ins 0 + 1017 = 1017.

1947. 147 Six miles E. of Correo, Valencia Co., New Mexico. Elev. (aner.) 5700 feet. Aug. 26, 1947. (R.)

Scattered bunch grass, both short and tall, tumble weed, and low narrow-leafed yucca, and numerous other shrubs.

No Orth. except ✓*Paropomala* swept from bunch grass, and 1 juv. *Melanoplus*.

Orth. 2 + 1504 = 1506.
Other ins. 43 + 1017 = 1060.

1947. 148 Eight miles W. of Albuquerque, Bernalillo Co., New Mexico. Elev. (aner.) 5900 feet. Aug. 26, 1947. (R.).

Bunch grass & other low cover on sandy surface of bench west of Rio Grande.

Atamentria, 1 ♀ running on ground.

✓*Paropomala* few in bunch grass, or on ground flushed from bunch grass.

Cordillacris, few on ground.

Orth. 6 + 1506 = 1512.
Other ins. 3 + 1060 = 1063.

1947.149 Six miles E. of Edgewood, Santa Fé Co., New Mexico. Elev. (aner.) 6850 feet. Aug. 27, 1947. (R.)

Rolling plains country. Roadside ditch with tumble-weed, etc.

Melanoplus lakinus ns. ♀. Parabacillus, 1 ♂ nymph. Trimerot. pallidip. one on bare ground.

Orth. 4 + 1512 = 1516.
Other ins. 4 + 1063 = 1067.

1947.150 Four miles E. of Moriarty, Torrance Co., New Mexico. Elev. (estim.) 6500 feet. Aug. 27, 1947. (R.)

Short bunch grass high plains, with scattered rabbit weed, sunflowers, etc.

Parabacillus, several nymph. ✓ Paropomala, local, not numerous, nymph. Phlibostroma, common, very largely immature, general. Arphia pseudon. ns. 1 [illegible]. Mestobregma kiowa, few on bare spots. Derotmema haydeni, " " " " Trimerotropis texana, few on bare gr.

Ageneotettix, very few. Orth. 33 + 1516 = 1549. Opeia, all imm.
Other ins. 12 + 1067 = 1079.

1947.151 Fourteen miles ~~W.~~ E. of Moriarty, Torrance Co., New Mexico. Elev. about 6800 feet Aug. 27, 1947. (R.).
Tall grass, soft sage, sunflower & low rabbit weed on high plains. Very little Orth.
Paravaillus nmpt. Trimerotr. texana one on bare ground. Trimerotr. pallidip. one ditto.

Orth. 4 + 1549 = 1553.
Other ins. 2 + 1079 = 1081.

1947.152 Four miles E. of Clines Corners, Torrance Co., New Mexico. Elev. (approx.) 7100 feet. (check if possible) Aug. 27, 1947. (R.)
Rolling hills with cover of pinyon and juniper. Grassy areas with a dry ~~ear~~ spiked grass, thistle, sunflower, etc.
No Orth. at all except T. pallidip. on bare ground & juv. Melanoplus nmpt.

Orth. 4 + 1553 = 1557.
Other ins. 3 + 1081 = 1084.

1947.153 Eighteen miles E. of Clines Corner, Torrance Co., New Mexico. Elev. (approx.) 6300 (check if pos.) Aug. 27, 1947. (R.)
High plains with low juniper in some hollows. Cover low rabbit weed and similar vegetation.

No adult Orth. except 1 Oecanthus nmph. Philibostroma juv. & Melanoplus juv. in weed cover. Juv. Opeia in same.

Orth. 4 + 1557 = 1561.

Other ins. 9 + 1084 = 1093.

1947.154 Twenty-two miles W. of Santa Rosa, Guadalupe Co., New Mexico. Elev. (approx.) 5500 feet. (each) Aug. 27, 1947. (R.).

Short grass plains, with sun-cured taller bunch grass, tumble weed & other weeds.

Parabacillus, several nmph. Opeia 1 ad. nmph. Mestobregma, 1 juv. in ground.

Orth. 7 + 1561 = 1568.

Other ins. 2 + 1093 = 1095.

1947.155 Twelve miles W. of Santa Rosa, Guadalupe Co., New Mexico. Elev. (approx.) 5200 feet. Aug. 27. 1947. (R.)

High plains with scattered narrow-leaf yucca, bunch grass, etc.

No adult Orth. except 1 Cordillacris in ground.

Orth. 3 + 1568 = 1571.

Other ins. 2 + 1095 = 1097.

1947.156 Nine miles E. of Santa Rosa, Guadalupe Co., New Mexico. Elev. (an.) 4700 feet. Aug. 28, 1947. (R.).
Tall and short bunch grass, roadside and in wash in moderately rolling high plains. Some had ru. thistle and tumbleweed. *Parabacillus*, 1 nymph. *Paropomala*, local in long and short grass. Melanoplus sp. juv. 1 nymph.

Orth. 9 + 1571 = 1580.
Other ins. 12 + 1097 = 1109.

1947.157 Five miles N. E. of Cuervo, Guadalupe Co., New Mexico. Elev. (an.) 4550 feet. Aug. 28, 1947. (R.)
Tall grass, thistle, etc. *Roadside*.
No Orth. at all exc. *Trimerotr. pallidip.*

Orth. 0 + 1580 = 1580.
Other ins. 4 + 1109 = 1113.

1947.158 Four miles N. E. of Montoya, Quay Co., New Mexico. Elev. (an.) 4050 feet. Aug. 28. 1947. (R.)
Tall bunch grass, thistle, rabbit weed & various taller weeds, etc., roadside. Mesquite in open stands.
Pseudosermyle 1 ♂, 1 nymph. *Opeia*, ad. & juv. infrequent. *Mestobregma capito*, 1 all seen. *Hesperotettix* local in

rabbit weed, adults - juvs. Melanoplus foedus, few in taller weeds. Mel. glaucipes, 1, all seen. Dactylotum, one swept from ground. Schistocerca venusta, 1 in taller growth, several others flushed. Paropomala, local in shorter grass. Ageneotettix few on ground. Campylacantha, one, all seen. Phoetaliotes, 1♀ swept.

Orth. 22 + 1580 = 1602.
Other ins. 6 + 1113 = 1119.

1947.159 Seventeen miles E. of Tucumcari, Quay Co., New Mexico. Elev. (An.) 3550 feet. Aug. 28, 1947. (R.)

Roadside tall weeds, sunflowers, burdock, thistle, etc.

Ageneotettix few, on ground. Paropomala local, in grasses. Mel. differentialis few in tall rank growth. Mel. lakinus few. Mel. bowditchi general, but not abundant. Trim. pallidip. on bare gr.

Orth. 11 + 1602 = 1613.
Other ins. 4 + 1119 = 1123.

1947.160 Endee, ~~[illegible]~~ Quay Co., New Mexico. Elev. (an.) 3500 feet. Aug. 28. 1947. (R.).
Typical Great Plains conditions with added low mesquite dotted about. Cover largely a soft, grayish white sage-like plant; thistle, short grass, tall bunch grass, low rabbit weed, etc.

Parabacillus swept. Pseudosermyle, more general, swept. Litaneutria, 2 on ground, taken at same time. Opeia local, few. Mermiria bivittata, 1♂, all seen, in grass. Cordillacris 1 on ground, all seen. ~~Hes~~ Campylacantha, few adults, number of juvs. Paropomala local. Ageneotettix, few, on ground. Brachystola 1♀, in low growth, all seen. Mel. bowditchi, few. M. foedus, more numerous, very active. M. mex. type, local. Cycloptilum swept. Arethaea 1 juv. swept.

Orth. 42 + 1613 = 1655.
Other ins. 2 + 1123 = 1125.

1947.161 Seven miles S.W. of Adrian, Oldham Co., Texas. (Edge of cap rock.) Elev. (an) 3825 feet! Aug. 28, 1947. (R.)
Cover—rank roadside vegetation with thistle, burdock, rabbit weed, tall weeds and some tall grass.

Pseudopomala 1♂, 1♀, nymph. Mermiria 1♀, all seen, in tall grass. Cordillacris, 1 taken on bare gr., all seen. Spharagemon cristatum, 1 on road edge, all seen. Hadrotettix, in fair numbers, very wild, strong wind carrying them long distances. Brachystola, 3 taken, all seen, in dense low tangles. Hesperotettix, few. Campylacantha, few. Dactylotum, 1♂, 1♀, taken separately on gr. in low cover, all seen. Melanoplus bowditchi few. M. lakinus ditto. M. other n.w. species, 1♀ taken, all recognized. Cycloptilum 1 nymph.

Orth. 25 + 1653 = 1678.
Other ins. 5 + 1125 = 1130.

1947.162 Two miles W. of Conway, Carson Co., Texas. Elev. 3350 feet (aner.) Aug. 29, 1947. (R.).

Roadside tall grasses & weeds. Amphitornus, 1 all seen. Ageneotettix, a few on ground. Opeia, in moderate numbers. Phoetaliotes, not common, adults & juvs. Campylacantha abundant, chiefly mature. Mel. foedus type, few. Mel. femur-rubrum abundant.

Orth. 39 + 1678 = 1717.
Other ins. 3 + 1130 = 1133.

1947.163 Three miles E. of Groom, Gray Co., Texas. Elev. (ann.) 3050 feet. Aug. 29, 1947. (R.).

Roadside tall oat grass, various weeds, including sunflowers.

Mermiria neomex., not uncommon, adult & juvs. Opeia, numerous. Ageneotettix, few. Syrbula admirabilis, a few. Campylacantha, few, adults. Mel. femur-rubrum, numerous. Mel. discolor (?) few. Hesperotettix speciosus few. Conocephalus strictus 10. Oecanthus a few, swept.

Orth. 26 + 1717 = 1743.

Other ins. 3 + 1133 = 1136.

1947.164 Three miles S.W. of Alanreed, Gray Co., Texas. Elev. (ann.) 2850 feet. Aug. 29, 1947. (R.)

Great Plains type of vegetation - scattered low yuccas, short oat grass and other surface cover very low.

Stagmomantis juv. swept. & Pseudosermyle 1♂ swept Diapheromera 2 ♀, swept from taller growth. Mermiria neomex. 1♂. all seen. Amphitornus, few. Philibostroma, few, juvs. & adults. Ageneotettix common on ground. Hadrotettix very common, shy and strong-flying. Spharagemon aequale, 1 taken, all seen. Mestobregma

Kiowa, 1 taken, all seen. Phoetaliotes, 1 juv. taken, all recognized. Melanoplus foedus type, abundant, strong flying. Mel. gray-brown species, 1 ♀ taken, all recognized. Mel. flavipes ? 2 ♀♀. Arethaea, 1 ♀ swept. Cycloptilum nr. swept.

Orth. 49 + 1743 = 1792.
Other ins. 1 + 1136 = 1137.

1947.165 Five miles E. of McLean, Wheeler Co., Texas. Elev. (ca.) 2400 ft. Aug. 29, 1947. (R.)

Roadside tall weedy prairie growth, sunflower, sticky bush, burdock, etc., with a few low yucca.

Diapheromera, ♂ & nr. ♀♀, adults & juv. swept. Mermiria mac. 1 ♀, all seen. Paropomala, locally numerous. Ageneotettix in fair nos. on ground. Hesperotettix speciosus, very few. Mel. flavipes, few. Two larger species of Mel. abundant. Phoetaliotes, 1 taken, all recognized. Amblycorypha huasteca, numerous.

Orth. 50 + 1792 = 1842.
Other ins. 1 + 1137 = 1138.

1947.166 Eight miles E. of Shamrock, Wheeler Co., Texas. Elev. (unm.) 1900 feet. Aug. 29, 1947. (R.)

Shin-oak thickets on sandy soil along roadside, with numerous weedy patches.

Arphia carinata only, all seen. Schistocerca alutacea type, numerous but very wary, flying into very tough shin-oak. Hesperotettix 'speciosus' in fair numbers in weeds. Campylacantha infreq. in same. Mel. glaucipes few, flying into oaks. Other Mel. general, but chiefly in weeds.

Orth. 18 + 1842 = 1860.
Other ins. 0 + 1138 = 1138.

1947.167 Erick, Beckham Co., Oklahoma. Elev. (unm.) appr. 1800 feet. Aug. 29, 1947. (R.)

From underground pit in sand. Ceuthophilus.

Orth. 8 + 1860 = 1868.
Other ins. 0 + 1138 = 1138.

1947.168 Near Foss, Washita Co., Oklahoma. Elev. 1250 feet (unm.) Aug. 30, 1947. (R.)

Small area of unbroken prairie sod with native vegetation, in places with bare exposures of red shale. Litaneutria, 2♂, 1♀, running on ground in swept. Parabacillus general in taller growth, but less numerous than the Diapheromera species.

Diapheromera, 2 species, numerous to abundant locally in taller growth. Adults + juvs. Syrbula admir. few. Mermiria neomex. numerous, very active and free flying, diving to base of tall bunch grass tufts. Opeia, very few. Hippiscus, 1 taken all seen. Ageneotettix, infrequent. Brachystola, the two taken all seen, one jumping to stem of weed at least a foot from ground. Hesperotettix viridis, locally numerous. H. speciosus, abundant, more general. Phoetaliotes few. Large Melanoplus very active, not very numerous. Small brownish Mel. - 11 taken all unrecognized. Conocephalus, few, immat. Arethaea 1 immat. Rehnia, 1 immat, all seen. Oecanthus 1 immat. Cycloptilum ditto.

Orth. 77 + 1868 = 1945.
Other ins. 0 + 1138 = 1138.

1947. 169 Eight miles E. of Clinton, Custer Co., Oklahoma. Elev. (ap.) ~~1200~~ 1500 feet. ~~[illegible] o'clock~~ Aug. 30, 1947.

Oat grass, tall weeds, scattered low yuccas, a few prickly pear, etc. on low rolling hills.

Litaneutria, 1♀ on ground - Hesperotettix viridis, very few. H. speciosus, abundant + general. Campylacantha, local,

1947.169 (cont.)

not very numerous. Mel. bivittatus, not common. M. atlanis type, rather general, but not abundant. M. foedus type, numerous, active. M. differentialis, very few. Conocephalus, 1 ♀ nympt. Arethaea, 1 nympt.

Orth. 43 + 1945 = 1988.
Other ins. 0 + 1138 = 1138.

1947.170 Near Bridgeport, Caddo Co., Oklahoma. Elev. (~~an~~) - ~~1050~~ 1500 feet ~~check~~!!
Aug. 30, 1947. (R.).

Prairie sod on rocky hill slope, with clumps of white sage, low wild cherry and numerous other elements. Litaneutria 1 ♀ running on ground. Diapheromera locally abundant, very active when disturbed, males more numerous than ♀♀. Ageneotettix few on ground. Mel. atlanis type not common. Hypochlora alba abundant on white sage.

Orth. 39 + 1988 = 2027.
Other ins. 0 + 1138 = 1138.

1948

1948.1 Panther, Pike Co., Penna. Aug. 11, 1948. Elev. 2150 feet. (R.).
In roadside tall grass & bushes, in an old field and in woods of maple, etc., with rhododendron tangles, etc.
Nearly all sp. still immature. { M. femur-r. few adults also. Adult Mel. bivitt. few, roadside, ~~some~~ ad. Chorthippus in old field, juvs. very numerous. Tettig. in ditto. Scudderia ad. in roadside bush & grass, juvs. numerous. Conocephalus adults not common, ~~adults~~ juvs. numerous, in both old field & roadside veget. Nemobius very few adults, in same type of vegetation. Dissost. carolina seen but lost.

Orth. 21
Other ins. 53

1948.2 Betw. Angels & Gouldsboro, Wayne Co., Penna. Aug. 17, 1948. Elev. about 2000 ft.
In bracken, blueberry & other low brush on recently cut-over land. Very little Orth. adult.
Chorthippus most immature. Local.
Mel. bivittatus very few.
" femur-rubrum. Several adults.
Orth. 12 + 21 = 33
Other ins. 2 + 53 = 55.

1948.3 Two miles S. of Gouldsboro, Monroe Co., Penna. Aug. 17, 1948.
Blackberry tangles, bracken, huckleberries, etc. on cut-over roadside land. Nothing adult but 1 M. femur-rubrum.

Orth. 1 + 33 = 34
Other ins. 5 + 55 = 60

1948.4 As 1948.1 but Aug. 23, 1948.
Tettig., appar. neotaenic species, infrequent in thicker cover and more exposed ground on road bank.
Chorthippus rather general, in open, chiefly juv. largely in heavier cover, such as bracken.
Dissosteira, a few, one taken, on bare roadside surface.
Orph. speciosa a few, with Chorthippus.
Melanoplus femur-rubrum abundant; everywhere in open ground.
M. bivittatus, in grassier areas, the damper situations - not in woodland.
M. punctulatus - none found by direct search, but 3 came singly and rested on the white surface of the house.
Scudderia pistillata four taken, usually in bracken or other tangle.
S. other sp., few. - same situations.
Conocephalus brevipennis abundant in grassy areas.
Nemobius fasc. ditto.
N. maculatus very few - 1 ♂ taken.
Oec. nigricornis very few adults. } mostly juvs.
O. other sp. 1 taken. }

1948.4 (cont.)

Chort. viridif. 1 juv. nmpt – apparently second brood.

Orth. 86 + 34 = 120

Other ins. 17 + 60 = 77.

1948.5 Promised Land State Park, Pike Co., Penna. Aug. 25. 1948. (R.).

Dense second-growth deciduous forest of oak, maple, ~~saf~~ sassafras, etc. with underg. of rhododendron, laurel, huckleberry, sweet fern, etc. Ground surface very rocky.

Nomotettix nmpt from ground. Dissosteira on road edge. Melanoplus h. w. – 3 seen, 1 taken, in huckleberry bushes, very active and elusive.

Orth. 5 + 120 = 125.

Other ins. 0 + 77 = 77.

1948.6. Same as 1948.5 but different environment.

More open woods, with higher percentage of oaks and underg. more open, no rhododendron, chiefly sweet fern and bracken.

Diapheromera 1♂ nmpt, roadside. Nomotettix one on bare soil. Chorthippus, one roadside. Spharagemon bolli in woodland edge. Conoc. fasc. 1 nmpt, roadside. Melan. 1 nmpt.

Orth. 5 + 125 = 130.

Other ins. 1 + 77 = 78.

1948.7. As 1948.1 but Aug. 30, 1948. (R.) Nomotettix few. Chorthippus locally numerous. Gryl. pen. juvs. only. Dichromorpha 1, all seen. Mel. f.-rubrum enormously abundant. Mel. bivittatus few, in moister pockets. Scudderia, 2 spp. [illegible], 1 ♂ of each. Conoceph. brevip. very numerous. Nemobius 2 spp., numerous. Oecanthus pale species in fair no., dark-bellied species, a couple ♀ taken from spruce sapling.

Orth. 31 + 130 = 161.

Other ins. 5 + 78 = 83.

1948.8. Panther Hills, Panther, Pike Co., Pa. VIII. 30, 1948. (R.) Elev. 2100-2500 feet. Panther Hills are largely covered with second growth forest, chiefly maple, beech, wild cherry, some hickory and occasional hemlock. On the slopes and on the summit are cleared pasture land, with grass and some bushes, blackberry, etc. Work was done in a pasture about 150 feet up on the north side and in a larger one on the summit of the ridge about a half mile east of the road.

Nomotettix rather general in bare spots.
all ~~numerous~~
Orphulella speciosa abundant and everywhere in the meadows.

1948.8 (cont.).

Encoptolophus but 2 seen - 1 taken. (summit) Dissosteira a very few on summit, one taken. Spharagemon bolli local in summit meadow, usually near stone fences and wood edge. Seen sunning themselves on stones of fence. Camnula a few only, on summit, three taken. Melanoplus bivittatus very few in hills. M. femur-rubrum dominant. M. luridus few in with the preceding, much less frequent. Conoc. fasc. very few, Con. brevipennis not uncom. Nemobius abundant - more than one species?

Orth. 92 + 161 = 253.
Other ins. 0 + 83 = 83

1948.9. Between Warnertown and Pocono Lake, Monroe Co., Pa. Elev. circa 1800 feet. Sept. 1, 1948. (R.).
In woods clearing with blackberries, golden rod, etc.
Sole Orth. adult 1 Scudderia sept.
Orth. 1 + 253 = 254.
Other ins. 5 + 83 = 88

1948.10 Poplar Gap, Monroe Co., Pa. Elev. (see previous notes) Sept. 1, 1948. (R.).
Same area as worked in previous years. In

oak scrub, huckleberry, sweet fern and sassafras ground cover, dense and wiry. Much of the oak scrub burned in past years and dead in consequence. Dotted over the scrub are scattered single pines, live or dead, usually latter.

Nomotettix few. Mel. femur-rub. - vittatus very few each. Scudderia, 1 swept from oak scrub. Oecanthus - [illegible], exceedingly common in low cover.

Orth. 35 + 254 = 289.
Other ins. 6 + 88 = 94.

1948.11 Between Fern Ridge and Long Pond, Monroe Co., Pa. Elev. 1900 feet± Sept. 1, 1948. (R.)

In oak, sweet fern, blackberry and huckleberry scrub under scattered scrub pine. Little O. in solid scrub, back from road. Best work along roadside edge of same. Part of latter opposite cultivated field.

Nomot. few. in scrub. Chorthippus local, along edge. Orph. speciosa juvs. only in and along edge of scrub.
Melan. f.-rubrum few, roadside.
" vittatus quite numerous, roadside.
Appalachia 1 single ♀ swept on edge of scrub. Search for more unsuccessful.
Scudderia. Swept from oak scrub.

1948.11 (cont.).

Melanoplus fasc. 1♂ + 1♀. Taken especially in roadside edge of scrub.
Oecanthus - swept, general, 2 spp.
Nemobius mac.?. few, swept from edge of scrub.

Orth. 43 + 289 = 332.
Other ins. 5 + 94 = 99.

1948.12. Summit Lakes, S. of ~~the~~ Naomi Pines, Monroe Co., Penna. Sept. 1, 1948. Elev. 2000 ± feet. (R.).

Pocono scrub, as at 1948.11. Same outstanding components. Little of note in way of O.
Diapheromera, 18 swept.
Chorthippus few. Chortophaga 1 juv. swept from ground. Cono. brevip. few in scrub. Oecanthus (black body) abundant.

Orth. 15 + 332 = 347.
Other ins. 2 + 99 = 101.

1949

1949.1 Panther, Pike Co., Pa. Aug. 8, 1949. Elev. 2150 feet. (R.)

In same conditions as 1948.1. Most O. immature. Day hot, general surface conditions dry - much more so than 1948.

Orphulella speciosa juv. only.

Melanoplus bivittatus One adult, all seen.

" *femur-rubrum*. Numerous, but overwhelmingly juv.

Conocephalus brevipennis Local - all adult.

Oecanthus niveus 1 nymph.

" *quadripunct.* Three nymph.

Nemobius fasc. Few ad. - many ~~adult~~ immat.

Amblycorypha rotundif. 1♀ nymph from low bushes.

Orth. 23

Other ins. 6

1949.2 Same conditions as 1949.1. Aug. 19, 1949.

Chorthippus few juv. - 1 ad.

Mel. bivittatus few.

" *femur-rubrum* Abundant, largely immat. still.

Conocephalus brevip. 1 nymph.

Nemobius fasc. In low cover.

Orth. 15 + 23 = 38

Others 1 + 6 = 7

1949.3. Same loc. as 1949.1 Aug. 21, 1949. (R.)
Silphids (*S. americana* + *Necrophorus*)
under or on dead cotton-tail rabbit.
Orth. 0 + 38 = 38
Other ins. 7 + 7 = 14

1949.4 Same loc. as 1949.1 Aug. 22, 1949. (R.)
In field, thicket edges and tangles, short grass + long grass, sweeping on bracken + sensit. fern, wild grapes, adjoining etc.
Nomotettix, 1 ad. 1 juv. swept.
Chortophaga 2 small juvs.
Chorthippus, local + not abundant, largely juvs. nearly all adults seen taken (5).
Mel. femur-rubrum very abundant - largely adult now.
Dichromorpha viridis 1 single ♂, - all one - swept in mowed grass.
Conocephalus brevip. Numerous, all adult.
Gryllus numerous - 1 taken.
Nemobius abundant.
Scudderia curvicauda type - 1 ♀ swept from taller growth.
Scudd. pistillata 2 ♀♀ ditto.
Oecanthus nigricornis Locally common.
" *quadrip.* Few.
Orth. 58 + 38 = 96
Other ins. 30 + 14 = 44

1949.5 4 mis. N. of Mt. Pocono, Monroe Co., Pa. 2200 feet. VIII. 25. (R.).

Along roadside through dense deciduous woodland - cover chiefly blackberry tangles & dense bracken.

No Orth. at all exc. 1 Mel. femur-rubrum - all seen.

Orth. 1 + 96 = 97

Other ins. 15 + 44 = 59

1949.6 6 mis. SW. of South Sterling, Monroe Co., Pa. About 2200 feet. VIII. 25. (R.)

Roadside in dense deciduous woodland, road edge cover chiefly bracken & blackberry.

Nomotettix - very small juv.

Melanoplus sp. " " " juv.?

~~Chortophaga~~ juv. very small.

Conocephalus brevip. Occ., all seen adult.

Nemobius, few, on ground.

Orth. 5 + 97 = 102

Other ins. 5 + 59 = 64

1949.7 Same as 1949.1 but VIII. 27. 1949. (R.)

Tettigidea 1 juv. swept, all seen.

Nomotettix " ✓ " " "

Chorthippus, local in tall grass, absent elsewhere, all adults but one, all males.

Chortophaga a few juvs. swept - both color phases.

Sphragemon bolli a single gravid female in cut over area along road.

Melanoplus femur-rubrum nymphs, abundant, numerous with infuscant pronotal dorsum.

Melanoplus bivittatus a few gravid females in lower, relatively more moist spots.
Scudderia sp. 1 ♀ swept in low growth
Conocephalus brevipennis general & common
Oecanthus 2 spp. swept, chiefly from tall grass.
Nemobius general & abundant on ground & in very low ground cover.

Orth. 56 + 102 = 158.
Other ins. 11 + 64 = 75.

1949. 8 Same as 1949. 1 but VIII. 30, 1949. (R.).
Roadside & old fields, with golden rod, blackberry bushes, milk-weed, tall grass, etc.
Nomotettix, juv. from ~~little~~ thin grass covered ground
Chorthippus very few, all adult.
Arphia sev. juvs. as Nomotettix.
Chortophaga 1 juv. ditto.
Melanoplus femur-rubrum abundant, everywhere.
M. ~~femur-rub~~ bivittatus - sev. gravid females, scattered, infrequent.
Conoceph. fasc. Several seen, one taken. swept
" brevip. Sev. swept.
Oecanthus quadrip. } Locally common,
" nigricornis } taken together.

Orth. 77 + 108 = 185
Other ins 32 + 75 = 107

1949.9 Same as 1949.1 but VIII.31.1949. (R.)
Mel. punctulatus on pavement in front of cottage & (1) in house. *M. bivittatus* roadside near bordering ditch. *Pelecinus* on pavement in front of cottage in evening.
Orth. 4 + 185 = 189
Other ins. 1 + 107 = 108

1949.10 Between Mountain Home and Laanna, Monroe Co., Pa. (5 mis. S. of latter, 2 mis. N. of former.) Elev. (aver.) 1350 feet. Sept. 2, 1949. (J.A.G.R.).
Open areas in mixed woodlands, with short and long grass, dense low ~~plant~~ ground cover and scattered taller bushes.
Orchelimum 1 ♂ swept.
Nomotettix swept in more open and drier areas.
Dichromorpha viridis, a number of both sexes.
Orphulella speciosa a few, all taken sq.
Arphia 1 small juv. swept.
Chortophaga a number of juvs. – both color types – swept.
Melanoplus femur-rubrum, abundant and general.
Conocephalus fasciatus several swept.
" brevipennis "
Gryllus assimilis, 1 ♀ taken on ground.
Nemobius, apparently 2 spp., abundant

on ground – in ground cover.
Orth. 73 + 189 = 262
Other ins. 2 + 108 = 110

1949.11 Mt. Pocono, Monroe Co., Pa. Elev. (aner.) 1600 feet. Sept. 2, 1949. (J.A.G.R.).

In barren of scrub oak, low aspen, huckleberries, etc. on edge of Pocono escarpment overlooking lower country to S.E. Numerous areas of small broken reddish brown stone, some small areas of sphagnum and others of dry lichens.

Nomotettix a few in bare spots, swept from ground. ✓

Chortophaga 1 juv. swept.

Arphia xanthoptera 1, all seen, taken from surface of a broken stone road.

Spharagemon bolli a few, flying strongly. 1 taken. None noticed going into oak, all alighting on the ground.

Melanoplus femur-rubrum very abundant & general.

Conocephalus fasciatus, a few, swept.

Oecanthus nigricornis 1 swept.

" quadripunctatus a number swept.

Orth. 21 + 262 = 283.
Other ins. 5 + 110 = 115

1949.12 As 1949.1 but Sept. 2. 1949.
Melanoplus puncticulatus on front flagging at house or on fire-wood logs in back of house. All ♀♀.
M. bivittatus 1 ♂ in road border - numerous others, chiefly ♀♀, seen.
Scudderia flushed from roadside brush on to road surface.
Orth. 7 + 283 = 290.
Other ins. 0 + 115 = 115

1949.13 Exactly the same two conditions as for 1948.8, same elevations, etc. Sept. 3, 1949. (R.)
Nomotettix infrequent, on ground surface.
Tettigidea adult & juvs. ditto, more numerous.
Orphulella speciosa local, not at all common.
Chortophaga juvs general, saw and lost one adult in green phase.
Encoptolophus abundant, general, usually crouching, when flying usual going a fair distance. Females more numerous than males - latter seemed more localized.
Dissosteira numerous, wary and active.
Spharagemon bolli locally numerous, more frequent near woody borders of pasture.
Melanoplus femur-rubrum abundant & general, varying greatly in size. One male with teratologically reduced but

well formed alar organs taken.
Mel. luridus local and not very numerous.
No sign ~~that~~ of Camnula which I took in the same top area in 1948.

Orth. 127 + 290 = 417
Other ins. 0 + 115 = 115.

1950.

1950.1 Knob due S. of Robinson Lake, Dickinson Co., Iowa. Elev. 1600 feet ± Aug. 5. 1950. (R.)
A glacial knob of stratified gravels retaining on its slopes the original prairie flora, including Veronica, etc. At the foot, between the hill and where the car was parked was a harvested wheat field. Visited with Dr. King, who drove us. Sweeping used exclusively.
Relatively limited Orth. The only species numerous being Conocephalus saltans, which was in moderate numbers both adult & juvs. There were numerous juvs. Oecanthus, but quite small & I kept none. Neoconocephalus, Orchelimum & Scudderia ~~both~~ all juvs.— kept 1 of each. Melanoplus luridus sev. juvs. Diapheromera, 2 juvs. 1 green 1 brown.

Orth. 22 = 22.
Other ins. ~~19~~ 21 = ~~17~~ 21.

1950.2 Prairie area 1 m. NW. of Montgomery, 2 ms. W. of Welsh Lake, Dickinson Co., Iowa. Aug. 5. 1950. (R.).
An extensive area of prairie land, unplowed but cut for hay, which, however, has not killed off many of the native prairie plants. It is close to the Little Sioux River, which borders the tract on the west. Also roadside ditch of tall grass and weeds. Chorthippus a few in a roadside drain, but not in the prairie area proper.

Orphulella very numerous in the prairie area - green phase not common but present.

Dichromorpha sev. juvs. seen, no taken, in prairie area.

Melanoplus dawsoni local in the prairie area some taken.

Phoetaliotes neb., several juvs. seen in prairie area, no taken.

Amblycorypha rotundifolia ssp. a few in roadside ditch & prairie area, lost 1 male.

Neoconocephalus a few adults, roadside & in prairie area.

Orchelimum gladiator 1 ♂, only adult seen, in prairie area.

Conocephalus fasc. a few in prairie area, but much less abundant than C. saltans.
C. saltans abundant in both habitats, largely adult here.

Diapheromera 1 juv. ♀ & 3 adult ♂♂ - all very small. In both habitats.

Orth. 90 + 22 = 112.
Other ins. 16 + 21 = 37.

1950.3 West end of Silver Lake, Dickinson Co., Iowa. Aug. 5, 1950. (R.).

An area of hanging bog on a point above the general level of the lake. This area is really a fen with spongy ground, due to the chemical composition of the soil. Plant cover heavy and tall, grass, sedges and in places cat-tails. Also along low road causeway leading past the area, with relatively similar vegetation.

Orchelimum nigripes numerous in spots, adults & juvs., largely latter.

Orchelimum sp. (glab. or concin.? or both) few adult, ♂ & ♀ taken. (largely on road causeway.)

Melanoplus bivittatus 1 ad. ♂ road causeway.

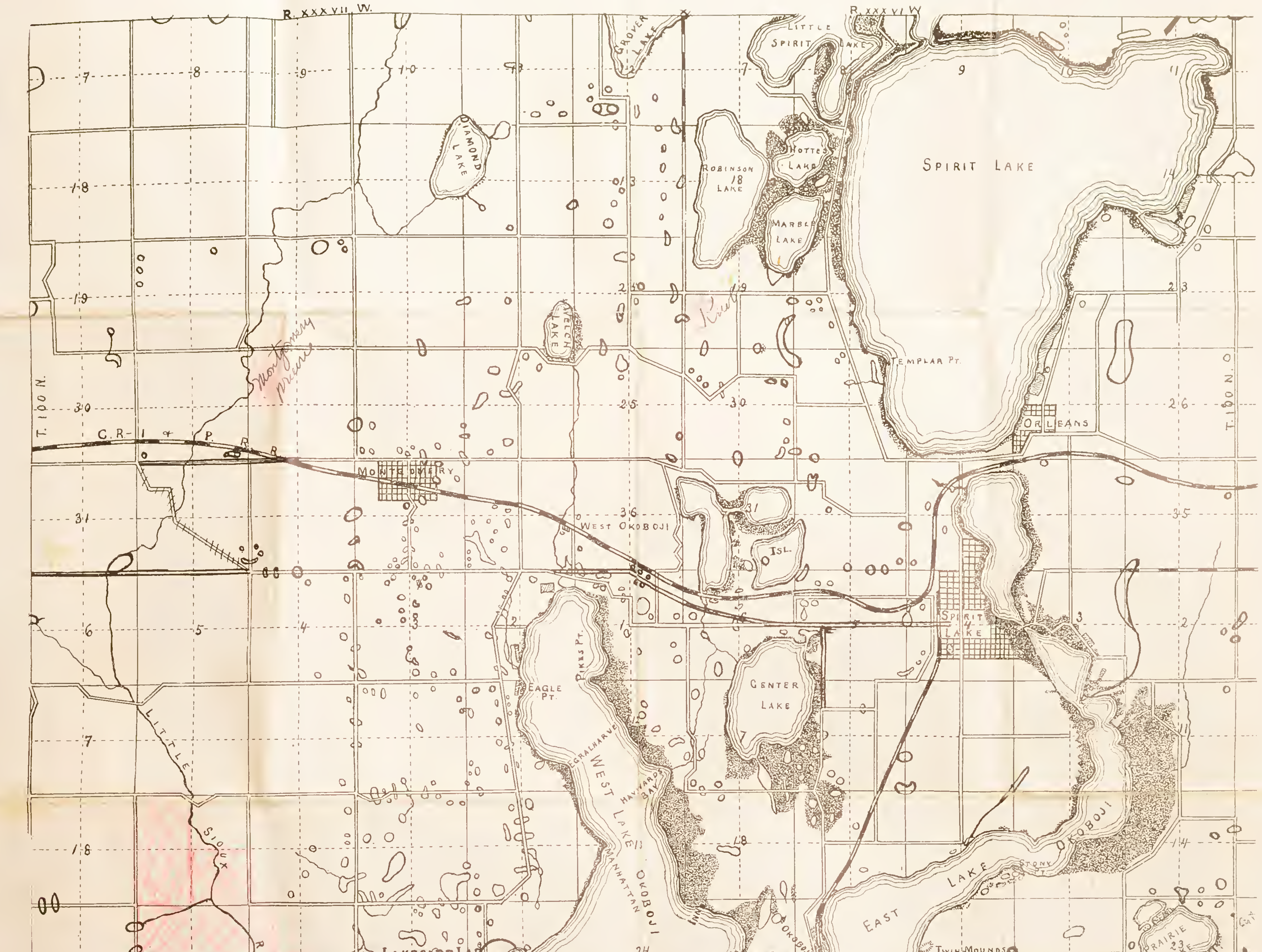
Orth 28 + 112 = 140.
Other ins 55 + 37 = 92.

1950.4 Iowa Lakeside Laboratory, west side Lake Okoboji, Dickinson Co., Iowa. Elev. 1460 feet. Aug. 6. 1950. (R.)

In roadside ditch and shoulder along road (32) in front of Laboratory grounds and along same (both sides) for about 300 yards. Vegetation tall weeds and grass, with occasional mullein and thistle with numerous milkweeds, also goldenrod.

Only adult Ch. a few Chorthippus. All Melanoplus – little ground too [illegible] at. the bugs.

Orth. 4 + 140 = 144. Other ins. 65 + 92 = 157.


R. XXXVII W.
R. XXXVI W.
T. 100 N.
T. 99 N.
T. 98 N.
Little Spirit Lake
Grover Lake
Diamond Lake
Robinson Lake
Hottes Lake
Marble Lake
Spirit Lake
Templar Pt.
Orleans
Welch Lake
C. R. I. & P. R. R.
Montgomery
West Okoboji
Isl.
Spirit Lake
Center Lake
Eagle Pt.
Pikes Pt.
West Lake
Okoboji
Haywards Bay
Manhattan
East Lake
Okoboji
Stony Pt.
Twin Mounds
Prairie Lake
Lakeside Lab
Millers Bay
Elm Crest Cove
Gull Pt.
Bluff Pt.
Emersons Bay
Pocahontas Pt.
Terrace Park
Arnolds Park
Fort Dodge Pt.
Upper Gar
Lower Gar Lakes
Prairie Creek
Little Sioux River
Sylvan Lake
Pratt Lake
Pillsbury Lake
C. M. & St. P. R. R.
Milford Cr.
Milford
Old Mill Pond
Montgomery prairie
Shimek Project
Milford woods

B. Shimek, del
also additions.

SCALE, 1 INCH=1 MILE

Map of region about
IOWA LAKESIDE LABORATORY

STIPPLED AREAS ARE FORESTED

1950.5 Iowa Lakeside Laboratory, Okiboji Lake, Dickinson Co., Iowa. Elev. 1440-1475 feet. Aug. 6, 1950. (R.).

Rolling hill surfaces within the preserve to the north of the buildings. Dry swales in the hollows, hill surface with tall oat grass, milkweed, a few thistles and patches of a white sage like plant. Wind very strong.

Almost no O., either adult or juv.

Pseudopomala 1♂ in oat grass - watched for others over considerable areas of similar cover with no success. Conocephalus - a very few juvs. Chorthippus 1♂ - all seen - in swaley spot between hillslopes.

Orth. 3 + 144 = 147.

Other ins. 29 + 157 = 186.

1950.6 As 1950.5 but Aug. 8, 1950. (R.)

In molasses traps in woods.

1 ♀ Parcoblatta pensylvanica.

Orth. 1 + 147 = 148.

Other ins. 8 + 186 = 194

1950.7 Along Little Sioux River 5 mi. S. & 4 mi. W. of Iowa Lakeside Laboratory (actually 2 miles E. of Pillsbury Lake), Dickinson Co., Iowa. Aug. 8, 1950. (R.)

Prairie knolls on E. side of river, with kettle holes between the hills.

1950.7 (cont.)

Vegetation typical prairie, apparently little cut for hay and not ploughed. Much short curly "plains" grass in some areas, particularly on the top of the swells, which are drier than the slopes.

Diapheromera numerous, quite a few ♀♀ not mature. One adult ♀ rose pink in nature.

Orphulella generally abundant, largely mature.

Opeia locally numerous in the short curly grass areas.

Ageneotettix local, and in fair numbers. A few immature.

Arphia pseudonietana rather general, but immature except for one male.

Melanoplus dawsoni generally distributed, but not common, all adult.

M. gladstoni One adult and numerous juvs. The latter have a characteristic speckled pattern.

M. luridus a few adults + numer. juvs.

Phoetaliotes juvs. only, generally dist. but not common

Eritettix a few very small juvs.

Tetrix one adult + 2 juvs.✓ kept.

Conocephalus saltans abundant, now in good part adult.

Oecanthus abundant, juvs. more numerous than adults.

Orth. 219 + 148 = 367
Other ins. 13 + 194 = 207

1950-8 Flote Prairie, 1½ mis. S. of Iowa Lakeside Laboratory, Dickinson Co., Iowa. Aug. 8, 1950. (R.)

A heavily grown small section of remaining prairie, with, however, no plains element in it as far as the O. are concerned. Tall grass, thistle, Rudbeckia, etc. are the more evident features, with some Veronica.

Diapheromera as in 1950.7
Orphulella abundant, largely adult.
Melanoplus dawsoni few, 1♂ 1♀ taken.
" luridus " ~~1♀~~ juvs. only.
Neoconocephalus robustus 1♂ 1♀ 1 juv. taken singly in the tallest grass.
Orchelimum 1 juv. [illegible].
Conocephalus saltans abundant, only adult - juvs.
Oecanthus adults few, juvs numerous.
Conocephalus fasc. 1 ad. taken.

Orth. 78 + 367 = 445.
Other ins. 21 + 207 = 228.

1950-9 3.5 mis. due W. of Lakeside Laboratory, W. Okoboji Lake, Dickinson Co., Iowa. Aug. 9, 1950. (R.)

Rolling prairie - 2 areas. grazed but not plowed in one case, cut for hay but not plowed in the other. Both with much grass but relatively little herbaceous vegetation left.

1950.9 (cont.)

Tall grass in swales between swells, no standing water in swales.

Diapheromera numerous, particularly ♂♂, mostly adult, in a number of different plants.

Orphulella local and not abundant.

Chorthippus largely in the swales and in the taller grass, locally common.

Pardalophora juvs. only infreq.

Melanoplus bivittatus | 1 ad. seen & taken (several) juvs. seen but not taken.

M. luridus 1 ad (taken) & a few juvs. - not common.

M. dawsoni ~~high~~ 2 ♂♂ taken, all noticed.

Arphia pseudonietana 1 juv. seen & taken.

Scudderia 1 ad. seen & taken - a few juvs. in various stages noticed.

Neoconocephalus robustus. Scattered adults & some juvs. in sev. instars. 5 ♂ 2 ♀ taken.

Orchelimum concinnum 1 ♀ taken

" sp. 1 juv. taken.

Conocephalus fasciatus Numerous.

" ~~[illegible]~~ saltans Abundant.

" strictus. less freq. ~~but~~ than former.

Oecanthus Many juvs. - few adults.

Orth. 91 + 445 = 536.

Other ins. 20 + 228 = 248.

1950.10 Same as 1950.5 but Aug. 9. 1950. (R.).

No O. adult except 2 species of ~~the~~ septentrionalis ♂, Scudderia. No trace of Pseudopomala.

Orth. 2 ~~a~~ + 536 = 538

Orthoptera 10 + 248 = 258.

1950.11 Same as 1950.9 but Aug. 10, 1950 (R.)

Dichromorpha numerous, largely adult, particularly the ♂♂, usually more evident on the swells.

Orphulella abundant, many still immature.

Chorthippus locally numerous, but not limited to the swales between the swells, and not necessarily in the highest grass or other vegetation. Apparently all adult.

Melanoplus ~~bivitt~~ bivittatus. A few adult — one pair in coitu.

M. luridus a few juvs.

" dawsoni locally numerous, chiefly on the drier tops of the swells, in relatively shorter vegetation.

Phoetaliotes a few small juvs. — generally distributed.

Neoconocephalus, a number in the tall grass in swales.

Conocephalus fasciatus a few.

" saltans nymphs in past stages.

" strictus juv. in evidence, but

1950.11 (cont.)

less numerous than saltans.
Oecanthus present, largely immature.
Orth. 134 + 538 = 672
Other ins. 19 + 258 = 277.
277

1950.12
Milford Woods, 2 mi. W. of Milford, Dickinson Co., Iowa. Aug. 11, 1950 (R.)
Roadside drain, edge of woods (chiefly burr oaks) and interior of woods. One of the very few areas of fair sized woodland in the immediate Okoboji area. Nothing at all in woods.
No O. adult except a few Dichromorpha + Mel. femur-rubrum, both roadside.
Orth. 6 + 672 = 678.
Other ins. 15 + 277 = 292.

1950.13
Big bend of Little Sioux River S. of Milford Woods, immediately S. about 1½ mi. from 1950.12. Dickinson Co., Iowa. Aug. 11, 1950. (R.)
Roadside tangles near the stream.
No adult O. at all.
Orth. 0 + 678 = 678.
Other ins. 7 + 292 = 299.

1950.14 One-half mile due W. of Milford, Dickinson Co., Iowa. Aug. 11, 1950. (R. + a few R. L. King).

Roadside areas of both short and long grass and gravelly surface of the top of a swell.

Very little O. *Arphia* very few a local in a small roadside area which had considerable short grass. *Dissosteira* adults + juvs. on road surface. *Trachyrhachis kiowa* on the gravelly top of the swell ~~with~~ in sparse short grass. *Orphulella* a few, roadside. *Mel. femur-rubrum* + *mex.* both few, roadside. *M. bivittatus* 1 juv. roadside. *Conocephalus saltans*, a very few, roadside. *Oecanthus*, nymph, roadside.

Orth. 34 + 678 = 712.

Other ins. 10 + 299 = 309.

1950.15 7 mi. S. E. of Westfield, Plymouth Co., Iowa. Elev. 1050 - 1150 feet (aneroid) Aug. 12, 1950. (King, Sallee, ~~B~~ Bodach + Rehn).

Glacial morainal gravel hills along east border of the valley of the Big Sioux River. Slopes and tops undisturbed prairie except perhaps lightly grazed. Evident Great Plains influence in plant cover and O. "Much" moss on the intr." growing on the slopes.

1950.15 (Cont.)

Virtually everything swept during a steady drizzle.

Diapheromera (plains type) 1 ♂.

Pseudopomala a single ♂. in tall grass.

Mermiria neomexicana quite common, both adults & juvs. - the latter in both green & brown phases. General.

Orphulella - numerous.

Ageneotettix - local in lower cover, chiefly the shorter grass

Arphia juvs. a number.

Hippiscus 1 juv. taken.

Hadrotettix a few, apparently scarce.

Melanoplus packardi 1 ad. taken.

" mex. a few.

" luridus juvs. only

Phoetaliotes 1 juv. kept, others smaller seen.

Dissosteira 1 ad. on slope.

Arethaea 1 ad. ♀.

Conocephalus strictus a few adults.

Orth. 95 + 712 = 807.

Other ins. 0 + 307 = 307

1950.16 Stone Park State Park, Sioux City, Woodbury Co., Iowa. Elev. 1250 - 1300 feet. (aner.) Aug. 12, 1950 Same colls. as 1950.16.

Hills bordering the east side of the lower Little Sioux River, strongly rolling and with woodland patches in the hollows leading down sharply to the river level. Hill cover strongly reminiscent of the lower lands of the

Black Hills, with abundance of Yucca angustifolia, tall grass & areas of short grass with gravelly exposed surfaces scattered over.

Eritettix Diapheromera (plains type) (many im. juvs.) ♂♂ only, a few.

Pseudopomala local, all ♂♂ exc. 1 ♀.

Mermiria neomexicana Very numerous, largely juvs. - both color phases in the ~~latter condition~~ adults & juvs.

Syrbula admir. juv. only

Orphulella Numerous, but less than usual in the whole area of mature grass.

Ageneotettix - a few, both sexes.

Phlibostroma 1 adult, a few juvs. seen.

Hippiscus rugosus. 1 adult & sev. juvs.

Trimerotropis lineata Adults, both sexes, numerous, strong fliers in a high wind. Juvs. also present - Taken.

Phoetaliotes 1♀ adult - all seen - and a few juvs. in various stages.

Hesperotettix pratensis Quite local in small groups - both sexes.

H. speciosus a single adult seen & taken.

Melanoplus packardii Common.

" mex. "

" luridus juvs. only - not partic. common.

Scudderia furcata (?) 1 ad. ♂.

Orchelimum vulgare Present as adults & juvs. but not common.

1950.16 (cont.)

Conocephalus strictus - saltans both present, largely juv.

Pediodectes 1 ad. ♂ taken, all imm.

Orth. 148 + 807 = 955

Other ins. 11 + 309 = 320

1950.17 1 mi. W. of Pilot Rock & 3 mi. S. of Cherokee, Cherokee Co., Iowa. Elev. 1950 feet (ann.) Aug. 12, 1950. Same collectors as 1950.15.

Roadside areas of very short grass with some tall grass & a few weeds. Nearby prairie heavily grazed and not collected in consequence.

Opeia locally common, a few juvs.

Eritettix sev. very small juvs.

Ageneotettix very few, a single ♀ taken.

Hippiscus rugosus 1 ad. & num. juvs.

Arphia ~~sp~~ pseudonietana 1 ad. only.

Dissosteira carolina 1 roadside!

Melanoplus mex. numerous.

Oecanthus mainly juvs. - few adults

Trachyrhachis kiowa a single adult.

Orth. 57 + 955 = 1012

Other ins. 1 + 320 = 321.

1950.18 1½ mis. N.W. of Larrabee, Cherokee Co., Iowa. Elev. 1350 feet. Aug.
VIII ^ 12, 1950. Same collectors as 1950.15.
True ungrazed prairie with many of the native wild flowers in bloom.

Diapheromera (smaller Okoboji type). Numerous, both sexes, one male partially green, all ♀♀ green.

Pseudopomala 1 single ♀.

Orphulella a few.

Chorthippus in fair numbers.

Melanoplus *bivittatus* 1 ♀ only.

" *luridus* 1 juv.

Scudderia - apparently 3 species - as a whole numerous, in taller grass and higher vegetation.

Orchelimum in limited nos. some immat.

Neoconocephalus as *Orchelimum*.

Conocephalus - *saltans* numerous, many juvs.

Amblycorypha *rotundifolia* only; 1♂ + 3 ♀ - met singly.

Orth. 53 + 1012 = 1065.

Other ins. 17 + 321 = 338.

1950.19 Same as 1950.9 but Aug. 14, 1950. (R.)
Diapheromera a few scattered.
Chorthippus rather general but not common.
Orphulella general & common.
Opeia very local but numerous there. The colonies were only in the short curly, usually cured-brown, grass and on the tops of the low knolls which were largely [illegible] there.
Arphia pseudonietana a few, more evident in the same areas as Opeia.
Trachyrhachis kiowa a few, in the same areas.
Phoetaliotes, scattered & still immature — usually in the tall grass areas.
Ageneotettix a few, in the Opeia areas.
Mel. femur-rubrum a few adults in tall grass.
Mel. mexicanus ditto.
Mel. gladstoni num. juvs. — appar. 1 lone adult (taken). Always local.
Mel. dawsoni numerous in preferred habitats — these not in the tall grass.
Conocephalus spp. saltans & fasciatus — latter fewer, the former exceedingly abundant — general.
Oecanthus general, largely juvs.
Orth. 162 + 1065 = 1227.
Orth. juv. 12 + 338 = 350.

1950.20 Fort Defiance State Park, ab. 2 mi. W. of Estherville, Emmet Co., Iowa, Elev. 1600 feet. Aug. 14, 1950. (King, Sallee & Rehn).

Largest area of woodland in the general area. Wooded patches and tangles on the slopes of ravines, with grass areas on the higher levels. Woods were oak & other deciduous trees - no conifers, undergr. in considerable part blackberry, quite a little red sumach on the wood border.

Very few O. adult, and no species in any numbers in any condition.

Diapheromera femorata - one juv. ♀ swept from foliage of trees.
Orphulella in grassy areas.
Chorthippus a single ♂ in grass patch.
Mel. femur-rubrum a few adults.
" punctulatus griseus 1 juv. ♀ swept.
" differentialis 1 juv. swept roadside.
Amblycorypha oblongifolia 1♂ swept, wood edge.
Scudderia appar. 2 spp., 1♂ 1♀. Both swept, wood edge.
Orchelimum sp. a few juvs.
Conocephalus saltans a very few adults.
Oecanthus not common as adults.

Orth. 24 + 1227 = 1251.
Other orders 18 + 350 = 368.

1950.21 2 mi. E. of Superior, Dickinson Co., Iowa. Elev. 1650 feet. Aug. 14, 1950. (King, Sallee - Rehn.)

Prairie-like plant cover in patch along RR. track and embankment. Weedy but with certain characteristic prairie plants.

Tetrix several juvs. swept; bare spots

Dichromorpha sev. juvs.

Orphulella numerous.

Chorthippus 1 taken.

Mel. *mex.* 1 ad.

Orchelimum 1 juv.

Conocephalus 1 spec. only.

Neoconocephalus 1♀ ad. swept.

Amblycorypha *iselyi* 1♂, 2♀ swept from taller vegetation.

Orth. 21 + 1251 = 1272.

Other ins. 2 + 868 = 870

1950.22 1 m. E. of Montgomery, Dickinson Co., Iowa. Elev. 1600 feet. Aug. 14, 1950. (King, Sallee - Rehn).

Border of RR. embankment, tall vegetation- grass and patches of whitish green very strict *Artemisia*, etc.

Diapheromera (local form) sev. ♂♂ 1♀.

Orphulella a few taken.

Chorthippus 1 taken.

Ageneotettix a pair taken.

Mel. *femur-rubrum* a few.

Hypochlora alba locally numerous in the tall strict whitish pale Artemisia growing here in scattered patches. Both adult & juvs. present.
Neoconocephalus adults - chiefly ♀♀ - moderately ~~common~~ numerous.
Conocephalus both fasciatus & strictus present, a few taken.
Orth. 52+ 1272 = 1324.
Other ins. 2 + 370 = 372.

1950.23 Same as 1950.4 but Aug. 15. 1950.
(R.)
Mel. femur-rubrum sev. adults. Many juvs. of M. f.-r., prob. mex. as well & a few juvs of M. bivittatus not collected.
Chorthippus 1 ad., all seen.
Dichromorpha 1 juv. all seen.
Conocephalus appar. 2 species, not abundant.
Oecanthus few.
Scudderia sp. prob. texensis, 1♀.
Orth. 12 + 1324 = 1336.
Other ins. 51 + 372 = 423.

~~1950.24~~

1950.24 2 1/2 miles W. of Luverne, Rock Co., Minn. Aug. 16, 1950. (R.).
Roadside waste land vegetation, bordering R.R. embankment also. Rudbeckia & numerous other weeds, tall grass & areas of relatively short grass. No O. adult but what was collected.

Mel. femur-rubrum 1 adult.
Enc. 1♂.
Oecanthus a pair - numerous juv.
Orth. 4 + 1336 = 1340.
Other ins. 13 + 423 = 436.

1950.25 Manley, Minnehaha Co., Minn. Aug. 16, 1950. (R.J) Elev. 1350 feet (aner.).
Roadside drain & R.R. embankment. Weedy with tall grass. Nothing in O. seen adult except those taken - here noted.

Mel. femur-rubrum 1ad. taken.
Neoconocephalus 1♀.
Scudderia 3♀.
Conocephalus both fasc. & saltans
Oecanthus ♂♀.
Orth. 21 + 1340 = 1361.
Other ins. 7 + 436 = 443.

1950.26 7 mi. E. of Stanley Corners, McCook Co., ~~#~~ So. Dakota. Elev. 1200 feet (aner.) Aug. 17. 1950. (R.)

Roadside depression with tall grass & weeds. Adults only of the following: Chorthippus, Encopt. fasc. & another, 1 Orchelimum. No melanoplids adult. Juvs. of Dichromorpha.

Orth. 30 + 1361 = ~~1017~~ 1391.
Other orders 4 + 443 = 447.

1950.27 1½ mi. NW. of Bridgewater, McCook Co., So. Dakota. Elev. 1300± feet. Aug. 17, 1950. (R.)

Stretch of nearly undisturbed prairie along highway and railroad right of way. Sunflowers, tall grass, short curly grass & num. weeds.

Opeia locally present in small patches of the greenish white Artemisia; nowhere else.
Orphulella present but not common.
Hesperotettix speciosus 1♂.
Mel. femur-rub. Just becoming adult. Abundant.
Mel. dawsoni 1 very small colony - 1 pair taken
Mel. bivittatus 1 ♂, all seen adult.
Phoetaliotes numerous juvs - few adults - in taller vegetation

1950.27 (cont.)

Conocephalus adults appar. of 3 species, num. immat. swarming.
Nemobius fasc.? 1 unkpt.
Orth. 73 + 1391 = 1464.
Other ins. 15 + 447 = 462

1950.28 1 mi. S.E. of Alexandria, Hanson Co., So. Dakota. Elev. 1320 feet (state map). Aug. 17, 1950. (R.).
Roadside strip of prairie (little altered) betw. highway and R.R. right of way.
All seen adult taken except 1 Arphia pseudonietana lost.
Conoceph. Mel. f.-r. " aff. Ageneot. ~~[illegible]~~
Orth. 31 + 1464 = 1495.
Other ins. 2 + 462 = 464.

1950.29 4 mi. W. of Mt. Vernon, Davison Co., So. Dak. ~~[illegible]~~
Elev. 1400 feet (Ann.). Aug. 17, 1950. (R.)
Roadside - tall grass, weeds, sunflowers, etc.
Every species seen taken - at least when adult.
Mermiria neomex. 1 single battered ♀ at edge of roadway.
Orphulella few adults.
Phoetaliotes all juv. Mel. ~~f~~ bivitt. 1 ad. f.-r. few adults, many juvs.
Conocephalus app. 3 species adult, many juvs.
Oecanthus very few adults
Nemobius 1 ad. unkpt.

Chorthippus a very few in a limited area.
Orth. 38 + 1495 = 1533.
Other ins. 3 + 464 = 467.

1950.30. 6 mi. W. of Kimball, Brule Co., So. Dakota. Elev. 1400ft ± Aug. 17. 1950. (R.)

Unploughed roadside and an undisturbed (except for lightly grazed) area of adjacent prairie.

All species of Orth. seen adult were taken.

Chorthippus a few, all ♂♂.

Hippiscus corallipes type 1♂, 1♀. The latter flew very strongly and sometimes made flights of as much as 60 yards.

Phoetaliotes juvs. in all stages, few adults

Melanoplus bivittatus a few adults, but no juvs. seen.

Mel. femur-rubrum abundant, majority immatures. Numerous individuals (adult) inclined strongly toward the phase plumbus, but those taken right with them were of the more usual color type.

Hesperotettix pratensis a very few in the roadside ditch, without evident vegetational association.

1950.30 (cont.)

Hypochlora alba. Very local in the patches of greenish-white Artemisia. All seen adults except a few juvs. which were collected.

Scudderia 1♀ flying from one tall group of weeds to another.

Conocephalus, apparently 2 species, immatures very numerous.

Oecanthus in fair numbers.

Orth. 76 + 1533 = 1609.

Other ins. 8 + 467 = 475.

1950.31 3 miles W. of Oacoma, Lyman Co., So. Dakota. Elev. 1700 feet (aner.). (R.) Aug. 18, 1950.

Slopes of draw leading down to west bank of Missouri River from plains level. Cover mainly short Spartina-like grass. No O. (8.30am) but 1 Oecanthus + sev. Conocephalus.

Orth. 5 + 1609 = 1614.

Other ins. 32 + 475 = 507.

1950.32 Midway between Reliance and Lyman, Lyman Co., So. Dakota. Elev. ab. 1800 feet. Aug. 18, 1950. (R.)

Plains grass conditions, much of the short Spartina-like grass, some oat grass, some sunflower + other weeds.

Orth. moderately numerous, but picking weak.

All recognized taken except 2 Arphia pseudonietana.

Boopedon 1 ad. ♂. All seen.
Ageneotettix 1♀. " "
Opeia a small series - in the shorter grass.
Spharagemon collare 1♀ - lighted on stem of tall grass!
Mel. differentialis 1 in taller ditch weeds.
" bivittatus 1 " " " "
" femur-rubrum + mex. locally common -
Former sev. tending toward form plumbeus.
Orchelimum 1♀ except.
Conocephalus appar. 2 spp.
Orth. 29 + 1614 = 1643.
Other ins. 24 + 507 = 531.

1950.33 3 mi. W. of Presho, Lyman Co., So. Dakota. Elev. 1850 feet (aner.). Aug. 15, 1950. (R.)
Plains grassland with much of the Spartina-like grass.
All apparent O. seen taken. Nothing common - pickings poor.
Boopedon 1 juv. Ageneotettix 1, all seen.
Opeia a very few.
Mel. femur-rub. - mex. numerous - former appro. form plumbeus.
Mel. diff. + bivittatus each 1 taken.
Phoetaliotes 1 ad. + juvs.
Conocephalus sev. species, few.

1950.33 (cont.)

Orth. 23 + 1643 = 1666.
Other ins. 3 + 531 = 534.

1950.34 4 mis. E. of Murdo, Jones Co., So. Dakota. Elev. 2500 feet (aner.). Aug. 18, 1950. (R.).

Plains grass-land, chiefly wheat grass. Very high wind – work with net very hard. Everything recognized was taken.

Encoptolophus close to road on more exposed ground, all seen taken.

Amphitornus few

Phoetaliotes both adult & juvs.

Opeia very few. Ageneotettix ditto.

Melanoplus app. mex. not numerous.

Conocephalus 1 species appar.

Orth. 23 + 1666 = 1689.
Other ins. 9 + 534 = 543.

1950.35 3 mis. E. of Okaton, Jones Co., So. Dakota. Elev. ? Aug. 18, 1950. (R.)

Plains tall grasses & weeds, with patches of Artemisia cana. In lee of R.R. underpass protected from strong wind which made coll. elsewhere difficult. Everything seen taken except 1 Arphia pseudonietana.

Encoptolophus a single one.

Ageneotettix scarce.

Phoetaliotes few adults, mostly juv. numerous.
Mel. bivittatus few adults
" *mex.* & *fem.-rub.* not abundant.
Hesperotettix speciosus 1 taken, all seen
Orchelimum sp. 1 ♀.
Conocephalus 2 spp. numerous.
Oecanthus very few. – none taken.
Hypochlora common in *Artemisia cana* patches, nowhere else.
Orth. 74 + 1689 = 1763
Other ins. 8 + 543 = 551.

1950.36 2 mi. N.E. of Belvidere.
Jackson Co., So. Dakota. Elev. 2$\overset{3}{8}$00 feet.
Aug. 18, 1950. (R.)
Plains grass-land with some weeds, patches of *Artemisia cana*, etc.
Ageneotettix a few on bare spots.
Opeia in shorter grass.
Trachyrhachis 1 ♀ in bare area.
Phoetaliotes juvs. only.
Melanoplus f.-r. only.
Hypochlora in *Artemisia cana* patches only.
Conocephalus 2 spp.
Oecanthus a single adult caught.
Orth. 50 + 1763 = 1813.
Other ins. 13 + 551 = 564.

1950.37 11 mi. due W. of ~~East~~ Kadoka, Jackson Co., So. Dakota. Elev. 2460 feet (aner.). Aug. 19, 1950. (R.).

Short plains grass & weedy drains along road. Many patches of Artemisia cana. Some exposures of white clay - yielding nothing & 1 juv. Trim. All species seen taken.

Opeia common, a few still juv. In shorter grass.

Trim. red-leg. 1 juv. on bare white area.

Phoetaliotes ad. & juvs. moderately numerous. generally dist.

Mel. fem.-rubrum. generally but not abundant adult.

Ageneotettix few - 1 taken, bare area.

Hypochlora alba In Artemisia cana only, & both adults & juvs.

Hesperotettix speciosus a few, 1♂ 1♀ taken.

Conocephalus - in taller grass.

Dichromorpha viridis - in small colonies in taller grass.

Orth. 63 + 1813 = 1876.

Other ins. 7 + 564 = 571.

1950.38 Cedar Pass, Badlands Nat. Monument, Jackson Co., So. Dakota. Elev. 2600 feet (aner.) Aug. 19, 1950. (R.)

Short grass, yellow flowered composite (not out yet), cacti and small leafed shrubs, under scattered red cedars on eroded

(1950.38)

badland ridge (a castellated one).

Orthoptera very scarce, all seen taken except 1 Mermiria! for which long unsuccessful search was made.

Eritettix very small juv.

Opeia moderately numerous.

Hesperotettix pratensis 1 lone spec.

Mel. mex. moderately numerous.

Phoetaliotes " "

Arphia 1 juv.

Orth. 27 + 1876 = 1903.

Other ins. 17 + 571 = 588.

1950.39 7 mis. NW. of Cedar Pass, Badlands Nat. Monument, Jackson Co., So. Dakota. Elev. 2725 feet (aner.) Aug. 19, 1950. (R.).

Short grass with scat. Tumble-weed, sd. small yellow-flowered composite (not in Rosin) - one sticky.

Every species seen taken.

Mermiria macul. macclungi 1 ♀ in grass.

Opeia abundant.

Phoetaliotes juv. only - not numer.

Mel. fem-rubrum & mex. numerous, the former only in ditches, mex. everywhere.

Trachyrhachis on bare ground.

Orth. 41 + 1903 = 1944.

Other ins. 16 + 588 = 604

1950.40 11 mis. NW. of Cedar Pass, Badlands Nat. Monument, ~~Jackson~~ Pennington Co., So. Dakota. Elev. 2750 feet (aner.). Aug. 19, 1950. (R.). Short-long grass plains conditions. Very little of anything. All species seen taken. Juv. Eritettix few. Ageneotettix 1 seen + taken. Opeia general but not common. Mel. mex. 1 ♀.

Orth. 15 + 1944 = 1959.
Other ins. 0 + 604 = 604.

1950.41 18 miles W. of Kadoka, Jackson Co. So. Dakota. Elev. 2500 feet (aner.). Aug. 19, 1950 (R.)

At bridge over wash, with rich roadside drain vegetation as well as tall + short grass on plains surface. Little seen. All species noted were taken.

Opeia not numerous, adults + juvs.
Phoetaliotes " " " " " (mostly juvs.)
Mel. fem. - numerous in ~~[illegible]~~ rankest growth.
Hypochlora in Artemisia cana patches.
Conocephalus numerous - 1 species.

Orth. 30 + 1959 = 1989.
Other ins. 6 + 604 = 610.

1950.42 16 mls. due S. of Philip, Jackson Co., So. Dakota. Elev. 2775 ft. (aner.) Aug. 20, 1950.
(R.)

Roadside and undisturbed great Plains conditions on rolling terrain. Grassland with sticky yellow-flowered composite, Artemisia cana, tumble weed and a diff. yellow-flowered low composite, one very spidery, also some apparently Artemisia ludoviciana.

All species of O. recognized were taken

Diapheromera locally numerous, apparently all adult.

Amphitornus a single one taken.

Opeia numerous, rather general.

Ageneotettix a few.

Phoetaliotes common, adults & juvs. One long-winged one taken.

Hesperotettix pratensis apparently a colony in a diff. plant from the
" speciosus ~~more general but~~ not common in sticky compos.

Mel. luridus a few adults.
" bivittatus 1 taken, all seen.
" mexicanus } Rather general.
" fem.-rubr. }
" n. w. species - not common - local.

Dactylotum 1 ♂ all seen.

Brachystola rather general on ground, a few seen not taken.

1950.42 (cont.)
Conocephalus 1 sp. numerous.
Oecanthus 1 secured - except - all seen.
Orth. 110 + 1989 = 2099.
Other ins. 13 + 610 = 623.

1950.43 2 mis. E. of Cottonwood, Jackson Co., So. Dakota. Elev. 2700 feet (aner.). Aug. 20. 1950. (R.).

Plains cond. with cut grass and unmowed tall grass, some Tumble weed and a little Artemisia cana. Everything seen was taken but M. lakinus ~~[illegible]~~ was relatively more numerous in an Eriogonum-like plant on a steep cut bank where footing was exceedingly difficult to get.

[illegible] 1 ♂.
Opeia a few.
Amphitornus a single pair.
Phoetaliotes adults - juvs. numerous.
Melanoplus mex. - fem. - rubrum Plentiful.
" lakinus local - a few taken.
" short-winged a few.
Hypochlora not unc. in A. cana.
Conocephalus 1 species app.
Orth. 43 + 2099 = 2142
Other ins. 2 + 623 = 625.

1950.44 Wasta, Pennington Co., So. Dakota.
Elev. 2620 feet (aner.). Aug. 10, 1950. [R.]
Along the Cheyenne River.

Roadside drains and cut bank with great clumps of Artemisia cana, a little tumble weed, short grass, bunch grass and a nearby drain under road with a meadow-like swale with areas of tall reed-like grass.

Everything seen taken except 1 Trimerotropis.

Diapheromera 1 ♂.

Mermiria mac. macclungi locally common in the tall reed-like grass.

Mel. femur-rubrum + mex. common.
" bivittatus 1 ♀, all seen.
" lakinus a few.

Aeoloplus common in drain in a large colony (that is for area.

Brachystola 1 ad. ♂ 1 juv. - all seen.

Neoconocephalus 1 nymph in reed-like grass.

Conocephalus in reed-like grass.

Hypochlora on sage.

Orth. 43 + 2142 = 2185.
Other ins. 3 + 625 = 628.

1950.45 2 mi. NW. of Piedmont, Meade Co., So. Dak.
Elev. 3500 ft (chart). Aug. 21, 1950. (R.)

Roadside area with tall grass, Artemisia cana, ocas. yucca, a few sunflowers and other weeds. All O. species seen taken.

Pseudopomala a single male taken from tall grass - all seen.

Mermiria mac. mcclungi a very few, a ♂ + ♀ taken. Preferred the taller bunch grass.

Ageneotettix very few, one taken.

Chorthippus curt., both sexes taken - not uncommon.

Philibostroma a single ♀ taken - no others seen.

Opeia general but not numerous.

Hypochlora common in Artemisia cana patches.

Phoetaliotes numerous, adults + juv. rather general but also in Artem. cana.

Melanoplus bivittatus general, esp. singly. gen. in lusher vegt.

" differentialis a few in ranker grass.

" mex. (? bruneri) + fem-rubrum. general and common. Some of latter approach form plumbeus.

" dawsoni numerous. (any infantilis?)

" lividus scattered but not uncommon, some immatures also noticed.

" packardi a few.

Conocephalus not common.

Acrid. 114 + 2185 = 2299.

Other ins. 3 + 628 = 631.

1950.46 4 mis. S.E. of Sturgis, Meade Co., So. Dakota. Elev. 3700 feet (aner.). Aug. 21, 1950. (R.).

Plains condition with short grass and scattered bunch grass and much oat grass, some tumble weed and other plains types, also numerous bare spots.

Everything in O. seen taken except several Dissosteira carolina.

Opeia a few.
Ageneotettix not numerous.
Arphia pseudonietana seen 2, secured 1.
Mel. luridus a few adults
" packardi (& foedus ?) in fair no.
" bivittatus, a few.
" differentialis, three taken all seen.
" femur-rubrum common
" dawsoni 1 taken.
Hypochlora alba a few, in Artemisia cana.

Orth. 24 + 2299 = 2323.
Other ins. 0 + 631 = 631.

1950.47 Boulder Creek, 2 ms. W. of Sturgis. Black Hills, Lawrence Co., So. Dakota. Elev. 4400 ft. (aneroid). Aug. 21, 1950. (R.)

Glades in pine forest with small aspens scattered in small groves, and on ground along edge of woods with many ~~bo~~ dead branches scattered about.

All species of Orthoptera seen were taken.

Chloealtis conspersa one colony near a number of dead twigs - not seen elsewhere. 1♂, 4♀ taken. Not particularly active.

Opeia a single one on ground near road.

Tetrix 1 swept from ground surface.

Dissosteira car. a few near road - 1 taken.

Spharagemon bolli numerous in one small area but both under the pines and in a glade. Active.

Spharagemon collare several taken on bare patches in glade. No others seen.

Camnula - a single one taken. Certainly not common there.

Melanoplus bivittatus a number in the glade. Fairly com.

Mel. bruneri (?) In glade fair com.

" femur-rubrum. A few but not numerous.

" fasciatus a few in ground cover of pine woods.

Mel. huroni type, sev. in the glade. Two battered ♀♀. Huroni evidently nearly over.

Oecanthus sev. swept in glade.
Orth. 47 + 2323 = 2370;
Other ins. 18 + 631 = 649.

1950.48 West Strawberry Creek, 5 mis. SW. of Lead, Black Hills, Lawrence Co., So. Dakota. Elev. 5500 feet (by chart). Aug. 21, 1950. (R.).
An old altered mountain meadow at an ~~the~~ abandoned mine shaft. Nothing much there except swarms of *Camnula*. On the opposite side of the road was a colony of *Circotettix rabula*, of which sev. were taken. A few Mel. *Vittatus* were also in the meadow and 1 *Conocephalus* was swept.
Orth. 14 + 2370 = 2384.
Other ins. 2 + 649 = 651.

1950.49 North Boxelder Creek, 7 mis. S. of Windy Flats, Black Hills, Lawrence Co., So. Dakota. Elev. 5650 ft. (aner.-map). Aug. 21, 1950. (R.).
Low ground cover in thinned-out pine woods, one meadow-like spot and sloping cut bank with many small stones.
Chorthippus one taken.
Hippiscus rugosus type one on cut bank

1950.49 (cont.)

Camnula swarming in the meadowy spot.
Trimerotropis monticola one on cut bank.
" caerulipes " " " "
Mel. bivittatus a few in meadowy area.
" fasciatus three taken in woods, all recognized.
Orth. 16 + 2384 = 2400.
Other ins. 4 + 651 = 655.

1950.50 Silver Mtn. Camp grounds, 2 mi. S.W. of Rockerville, Pennington Co., Black Hills, So. Dakota. Elev. approx. 4500 feet. VIII. 22, 1950. (R.).

Open pine woods with grass and low herbaceous ground cover, with many dead branches, old cones and needles on ground. Everything seen taken.

Chloealtis conspersa local and not at all difficult to take, 3♂ 4♀ secured. Usually near the dead twig-branch mat.
Arphia a few in the barer spots.
Chorthippus a few adults, a number of juvs., found.
Mel. bivittatus. Here and there, both sexes.
" sp. prob. fem.: unknown 1♀ taken.
Orth. 19 + 2400 = 2419.
Other ins. 7 + 655 = 662.

1950.51 2 mis. N. of Keystone, Black Hills, Pennington Co., So. Dakota. Elev. approx. 5000 feet. Aug. 22, 1950. (R.).

Small flat made by bank cutting with gravel road mat. over much of surface. Rock cut on other side of road, and open pine woods on both sides ~~of ro~~ back from road. One large tangle of golden rod (in bloom) and berry bushes.

Everything seen taken.

Chloealtis conspersa local.

Chorthippus a few.

Dissosteira carolina swarming on the flat. 1♂ 1♀ taken.

Trimerotropis caerulipes One in woods on ground.

Circotettix rabula. Numerous and active, doing aerial dances, on the flat and at the base of the rock cut bank.

Spharagemon bolli a single one in the woods.

Arphia pseudonietana a few, 3 adults & 1 juv. taken.

Metator pardalinus a single ♂ taken in the woods on ground.

Camnula swarming on the altered conditions of the flat.

Ageneotettix a few on the flat, not numerous.

1950.51 (cont.)

Tetrix a single one swept.
Melan. bivittatus a few in the richer vegetation, particularly the golden rod.
Mel. femur-rubrum ~~ditto~~ swarming on the flat.
" bruneri? A few in the woods.
" fasciatus 1 in the woods.
" luridus " " " "
" dawsoni abundant in spots, generally in the woods.
Scudderia a male & female taken separately in the golden rod and berry tangle.
Conocephalus 1 swept in ditto.
Orth. 58 + 2419 = 2477.
Other ins. 15 + 662 = 677.

1950.52 Vicinity of Iron Mtn., Black Hills, Pennington Co., So. Dakota. Elev. approx. 5800 feet. Aug. 22, 1950. (R.).
In open pine forest on granite slopes in the central core of the Black Hills. Much dead topping from cutting, and dead twigs broadly scattered.
Everything seen taken.
Chloealtis numerous.
Camnula frequent near road.
Ageneotettix surprisingly in the woods.
Encoptolophus a single male on forest floor.
Metator 1 ditto.

Mel. bivittatus a few in woods.
" fasciatus 1 in woods.
" bruneri (?) 1 " "
Orth. 18 + 2477 = 2495.
Other ins. 2 + 677 = 679.

1950. 53 Head of Lightning Creek, 3 mi. W. of Fourmile, Black Hills, Custer Co., So. Dakota. Elev. 5500 feet. (aner. – chart) VIII. 23, 1950. (R.).

Roadside depression but not a true drain, under pines (no results here) and adjacent pasture with scattered sage and weeds (most productive). Most species present in large part juv. Everything recognized taken.

Ageneotettix swarming, juv. in pasture and roadside.
Camnula a few in pasture.
Spharagemon collare a few in both pasture and roadside.
Encoptolophus a single one in pasture.
Arphia pseudonietana scattered in pasture.
~~Most~~ Trachyrhachis in pasture only, not common.
Metator a single ♀ in pasture.
Trimerotropis monticola type. Abund. in both roadside & pasture.
Mel. bivittatus a few roadside.
" femur-rub. in roadside
" mex. in pasture.

1950.53 (cont.)

Mel. luridus a few in pasture adult, a few juvs.

Mel. gladstoni In pasture in fair nos., also numerous juvs.

Mel. infantilis? A few in pasture.

" dawsoni In both pasture & roadside.

Conoceph. a very few, roadside

Orth. 94 + 2495 = 2589.

Other nos. 18 + 679 = 697.

1950.54 Gillette Canyon, western Black Hills, Custer Co., So. Dakota. Elev. approx. 4700 ft. (Chart). VIII. 23. 1950. (R.).

Roadside area of ungrazed Great Plains grassland with tumble-weed & other usual weed components. All species recognized were collected.

Ageneotettix by millions, everywhere

Aulocara almost equally abundant, everywhere.

Hesperotettix vir. not common.

Brachystola a few, three coll. - all imm.

Hypochlora in sage clumps.

Phlibostroma numerous.

Hadrotettix a number.

Dactylotum occasional.

Arphia pseudonietana not many.

Phoetaliotes not common - some juvs.

Metator usual - all imm.

Opeia local, not common.

1950.54 (cont.)

Amphitornus occasional, virtually all seen were taken.
Conocephalus numerous, nympt.
Oecanthus nympt from sage.
Mel. bivittatus sev. seen - one taken
" foedus (?) Relatively numerous.
" femur-rubrum } numerous.
" mex.
" gladstoni a few; some juvs.
" lakinus " " adult, some juv.
No other Mel. in any numbers.
Orth. 182 + 2589 = 2771.
Other ins. 0 + 697 = 697.

1950.55 3 mi. SE. of Pedro, Weston Co., Wyoming. Elev. 4200 feet (ann.). Aug. 23, 1950. (R.)

Tumble weed, scattered true sage, sun-cured oat grass and patches of a type of salt bush (~~sal~~ Atriplex sp.?). Everything seen taken exc. 1 Trim. pallid.
Aeoloplides swarming in enormous numbers.
~~Ageo~~ Ageneotettix numerous.
Aulocara ditto
Spharagemon collare a few - 2 taken.
Metator 1 taken, all seen.
Arphia pseudonietana 1 seen & taken.
Mermiria mac. mcclungi a few, both seen taken.
Hesperotettix speciosus - 1 taken.

Opeia, Amphitornus 1 each taken.
Paropomala wyom. 1 taken from tall grass.
Mel. differenti. a few.
" bivittatus more numerous.
" femur-rubrum small numbers.
" Foedus (?) a few.
" sage brush species 1 taken.
Orth. 92 + 2771 = 2863.
Other ins. 3 + 697 = 700.

1950.56 4 mi. SE. of Upton, Weston Co., Wyoming. Elev. 4325 ft. (aner.) VIII.23.1950 (R.)

One of extreme western points of Black Hills in Wyoming, being one of last outpost of pine forest. Open pine stands with grass underneath, also area of tall sun-cured grass, Free sage and a small alkali flat. Ground impregnated with alkali. Wind very high. Mat. not abundant. Everything seen taken.

Orphulella sev. taken in grass of alkali flat.
Cordillacris one on drier area.
Trachyrhachis ditto.
Hesperotettix few.
Hypochlora few - one taken.
Dissosteira car. sev. seen 1 taken.
Paropomala wyom. 1 ♀ nymph from tall grass.
Mel. sev. small species taken, none of tho

larger species noted.

Orth. 26 + 2863 = 2889.
Other ins. 0 + 700 = 700.

1950.57 Bench on west side of Belle Fourche River at Moorcroft, Crook Co., Wyoming. Elev. 4225 feet (aner.). Aug. 23, 1950. (R.). Sage and tall grass and weedy ditch (no water). Wind high.

Opeia not common.
Trachyrhachis 1 taken.
Amphitornus 1 taken.
Ageneotettix numerous.
Hypochlora in fair nos.
Phoetaliotes 1 taken.
Mel. sage n. sp. a few.
" femur-rub. & mex. in fair nos.
Oecanthus all swept from sage.

Orth. 39 + 2889 = 2928.
Other ins. 1 + 700 = 701

1950.58 4 mi. E. of Gillette, Campbell Co., Wyoming. Elev. 4525 feet (aner.). Aug. 23, 1950. (R.)

Roadside area & ditch. Patches of escaped alfalfa, scattered sage and tall weeds and grasses.

Everything seen taken. Wind very high and work with net difficult.

1950.58 (cont.).

Ageneotettix fair no.
Camnula a few.
Chorthippus 1 taken.
Trachyrhachis two. taken.
Mel. femur-rubr. common
" sage br. species a few. Cnemidophorus 1 [illegible]
" other sp. a few.
Orth. 21 + 2928 = 2949.
Other ins. 4 + 701 = 705.

1950.59 Near East foot of Rawhide Butte, n. of Gillette, Campbell Co., Wyoming. Elev. 4350 feet (aner.). Aug. 24, 1950. (R.)

Wheat grass, sunflowers, sticky yellow-flowered composite, true sage, thistle and various weeds. Very little O. except 2 species of Melanoplus and Oecanthus, latter largely in sage and yellow-flowering composite. 1 Amphitornus.
1 Hesperotettix vir. + 2 Phoetaliotes
Orth. 38 + 2949 = 2987.
Other ins. 2 + 705 = 707.

1950.60 1 m. N. of Wildcat, Campbell Co., Wyoming. Elev. 4150 feet (aner.). VIII.24.1950. (R.)

Roadside tall grass, true sage, straggly weeds and sticky yellow-flower composites.
Mel. f.-r. + mex. absolutely swarming.

1950.60 (cont.)
Mel. bivittatus abundant also.
Pseudopomala swept from tall grass.
Trachyrhachis & Metator 1 each seen - taken
Phoetaliotes a number.
Hesperotettix " "
Mel. dawsoni local.
" bowditchi a few.
" packardi (or foedus?) a number.
Aulocara moderate number.
Ageneotettix numerous.
Hadrotettix 1 seen - taken.
Opeia very few.
Amphitornus in fair numbers, singly.
Camnula 1 taken sweeping.
Oecanthus particularly swept from sage.
Orth. 90 + 2987 = 3077.
Other ins. 7 + 707 = 714.

1950.61 7 mi. W. of Spotted Horse, Campbell Co., Wyoming. Elev. 4020 feet (aner.) VIII. 24. 1950. (R.)
True sage, some cured out grass & tall grass, dried tall weeds, and a few sunflowers and sev. patches of Artemisia cana.
Everything recognized taken.
Amphitornus & Opeia scarce.
Arphia pseudonietana a few.
Mermiria neomexicana 2♀♀ in tall grass.

1950.61 (cont.)

Ageneotettix not abundant.
Aulocara a few.
Opeia " "
Phoetaliotes " "
Hypochlora a few in *Artem.*-cana.
Mel. foedus (?) a few.
" *bivittatus* a few.
" *bowditchi* *canus* numerous in true type.
Metator a single female.
Hesperotettix a few.
Conocephalus very few.
Oecanthus numerous.

Orth. 54 + 3077 = 3131.
Other ins. 7 + 714 = 721.

1950.62 1 m. W. of Clearmont, Sheridan Co., Wyoming. Elev. 3800 feet. (aner.). VIII.24.1950. (R.).

Moist ditch with lush vegetation, ~~in~~ tall *Spartina*-like grass, tall sunflowers and other tall weeds.

Conocephalus in numbers in ditch grass, also 1 *Orchelimum* & 1 *Oecanthus*.
Mel. f.-r. common on borders of same.
Chorthippus in small numbers in ditch grass.

Orth. 25 + 3131 = 3156.
Other ins. 9 + 721 = 730.

1950.63 13 mi. N.W. of Ucross, Sheridan Co., Wyoming. Elev. 4200 ft. (aner.). Aug. 24, 1950. (R.).

Sage, sun-cured grass and dried up weeds, plus sunflower and sticky yellow-flowered composites. Loc. just above cultivated and irrigated land along a small tributary of Powder River. Also cut bank in fire altered and multi-fractured and crumbly varicolor rock (prob. Indian paint stone, red being predominating color.

2 *Circotettix* were seen, both colored reddish like the exposures, but they were very wild and could not be approached on account of ground conditions.

Mel. f. r. commonest species.
" *packardi* a few
" *luridus* 1 ♀ taken.
" *dawsoni* not uncommon.
Scudderia 1 ♀ nympt.
Oecanthus Numerous, all nympt.
Orth. 28 + 3156 = 3184.
Other ins. 0 + 730 = 730.

1950.64 8 mis. SE. of Sheridan, Sheridan Co., Wyoming. Elev. 3900 feet (aner.). VIII.24.1950. (R.).

Rolling plains with small stream ~~trib. to Powder River~~ below cooking point. Area altered by cultivation and grazing. Roadside weeds of var. species & tall grass, (irrigation patches nearby), some *Artemisia cana*.

Pseudopomala in tall grass.
Mermiria mac. mcclungi 1 ♂ nympt.
Hypochlora few in *Artem. cana*.
Mel. dawsoni 1 taken.
" *f. r.* numerous.
Conoceph. 1 ♀ nympt. *Phoetaliotes* 1 pr. taken.
Oecanthus several nympt.

Orth. 12 + 3184 = 3196.
Other ins. 5 + 730 = 735.

1950.65 Granite Pass Road above Dayton, Sheridan Co., Wyoming. Elev. 6050 feet. (aner.). Aug. 25, 1950. (R.) Big Horn Mts.

Road shoulder with cover of *Artemisia cana*, tall grass and other low growth. Nothing adult exc. 1 *Ageneotettix*.

Orth. 3 + 3196 = 3199.
Other ins. 23 + 735 = 758.

1950.66 Mountain meadow near Cutler Hill, Big Horn Mts., Sheridan Co., Wyo. Elev. 8400 feet (aner.). Aug. 25, 1950. (R.)

Relatively dry mountain meadow, except for one lower area which was moist (rain earlier). Sun-cured grass over much of surface and other low vegetation. (Rain threatening constantly.)

Sole O. seen were:

Camnula quite common, on drier ground.

Mel. sp. (montana) much less numerous and found only by careful search. In moister areas as well as the drier portions.

Steiroxys ♀♀ in grass in drier portion. Extensive search failed to turn up any ♂♂.

Orth. 24 + 3199 = 3223.

Other ins. 6 + 758 = 764.

1950.67 Mountain meadow 4 mi. N. of Granite Pass, Big Horn Mts., Sheridan Co., Wyom. Elev. 8600 feet (aner.). VIII.25, 1950.

High mtn. plateau flat with lush meadow of tall grass and many wild flowers, the whole bordered by spruce and fir forest. Everything seen taken.

Chorthippus adults occasional.

Aeropedellus 1♀ - careful search did not turn up another

1950.67 (cont.)

Stout *Melanoplus* 2 ♂♂ taken, all seen. In lush grass.
Numerous juvs. of the prob. the first two genera here listed. Note pale coloration of sev. ♀♀ *Chorthippus*.
Orth. 26 + 3223 = 3249.
Others in 4 + 764 = 768.

1950.68 Meadowy spot in sage, west side of Granite Pass, Big Horn Mts., Big Horn Co., Wyo. Elev. 8100 feet (aner.). Aug. 25, 1950. (R.).
A solid sage intrusion from down the Shell Canyon, which is just below, altho' the lower levels in the canyon are heavily timbered in greater part.
All seen taken except *T. suffusus*, of which two were seen (reasonably close) and heard.
No true *Circotettix* noted.
Taken 1 *Mel. gladstoni*, 1 *Camnula* (others seen), 1 *Aulocara* (all seen) and a small lot of *Chorthippus*. A small rill trickled through the sage and made a moist area of a few yards wide.
Orth. 7 + 3249 = 3256.
Others 1 + 768 = 769.

1950.69 Shell, at west base of Big Horn Mts., Big Horn Co., Wyo. Elev. 4200 ft. (chart). Aug. 25, 1950. (R.).
Roadside in cultivated section. Nothing noted except what was taken.
Mel. f.-r. & mex. Former much more numerous than latter.
Orth. 11 + 3256 = 3267.
Other ins. 3 + 769 = 762.

1950.70 3 mis. W. of Emblem, Big Horn Co., Wyo. Elev. 4500 feet (anem. & chart) Aug. 25, 1950. (R.).
Sage brush area, heavily grazed by sheep. No O. noted exc. 1 Trim. bilobata ~~except~~ on bare ground & [illegible] swept from sage.
Orth. 2 + 3267 = 3269.
Other ins. 2 + 762 = 764

1950.71 3 mis. SW. of Ralston (near Alkali Creek), Park Co., Wyo. Elev. 4500 feet (anem.). Aug. 26, 1950. (R.)
Roadside weedy areas, sunflowers, tall grass, high & low weeds, also drier salt area. ~~Everything~~ Everything seen taken.
Ageneotettix a few, barer areas.
Orphulella 1 in tall grass.
Camnula a few.